Vol. XVI. MAY, 1895. No. 5.

PUBLISHED MONTHLY AT $3 A YEAR. SINGLE COPIES, 30 CENTS.

THE JOURNAL OF COMPARATIVE MEDICINE AND VETERINARY ARCHIVES

EDITED AND PUBLISHED BY

RUSH SHIPPEN HUIDEKOPER, Veterinarian (Alfort),

W. A. CONKLIN, PH.D., D.V.S., A. W. CLEMENT, D.V.S.,

W. HORACE HOSKINS, D.V.S.

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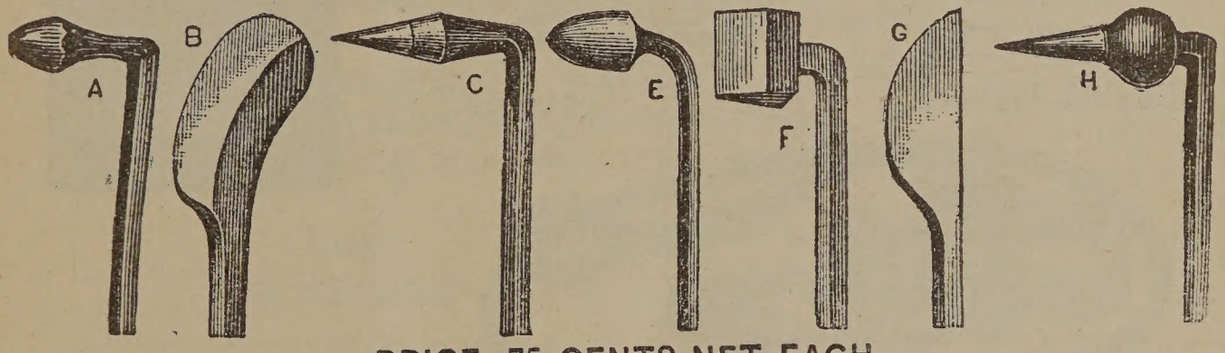

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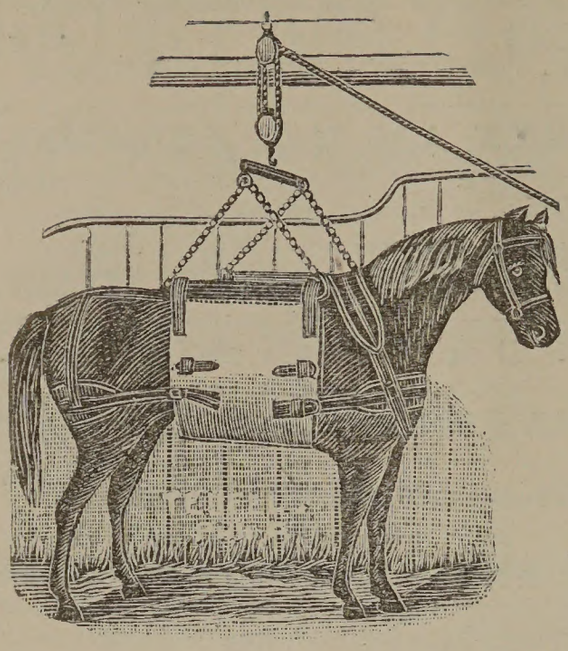

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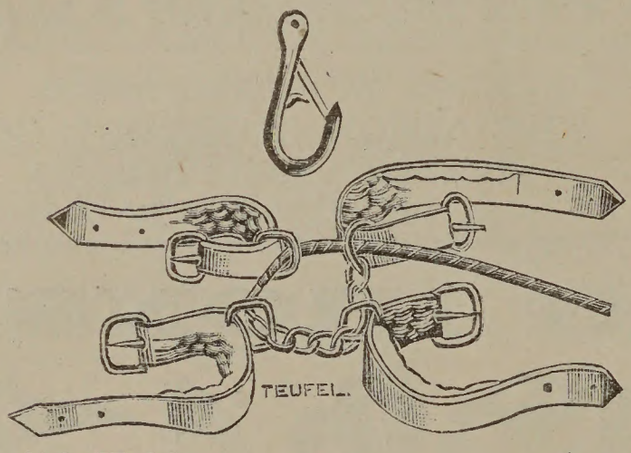

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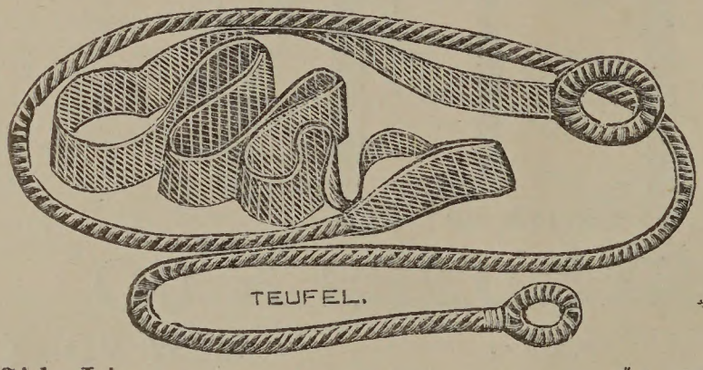

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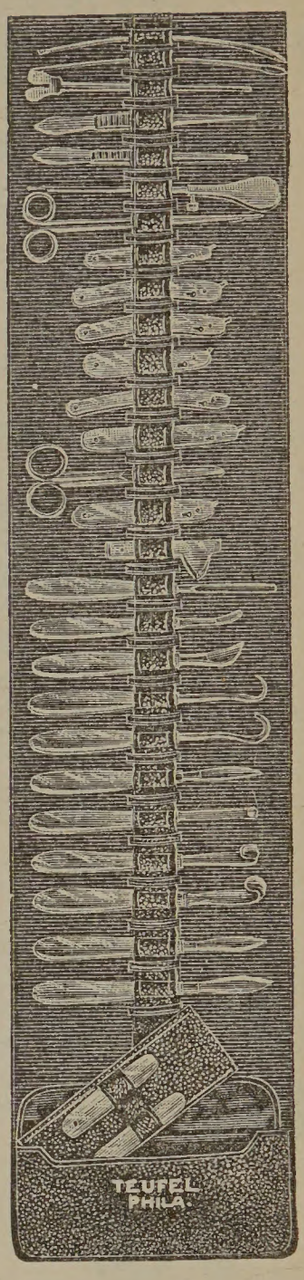

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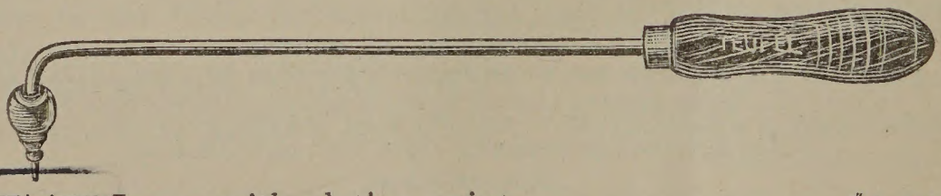

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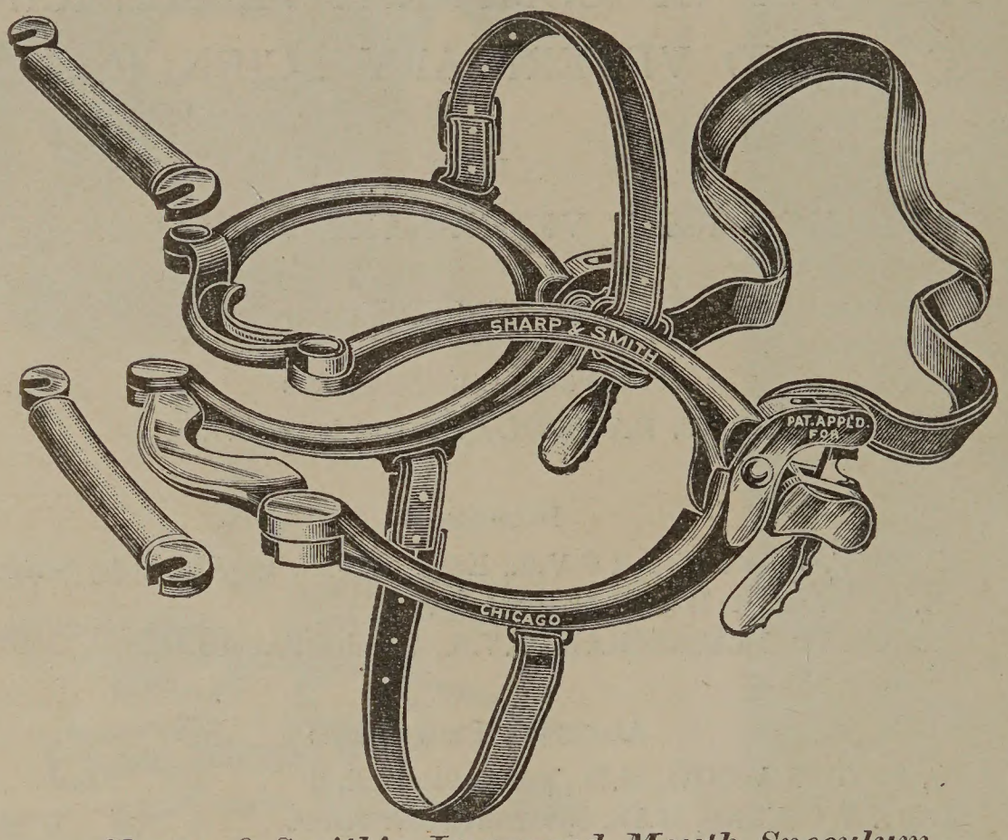

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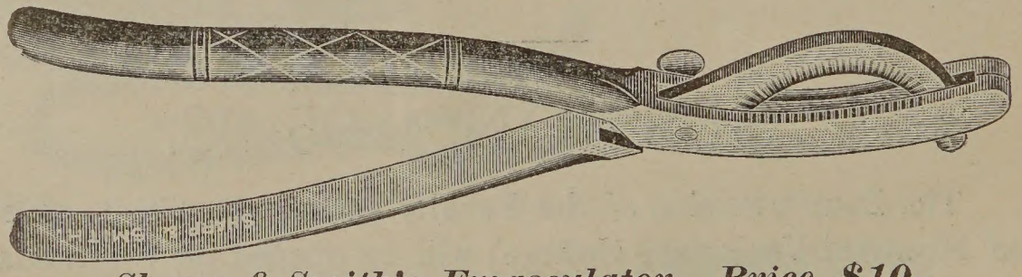

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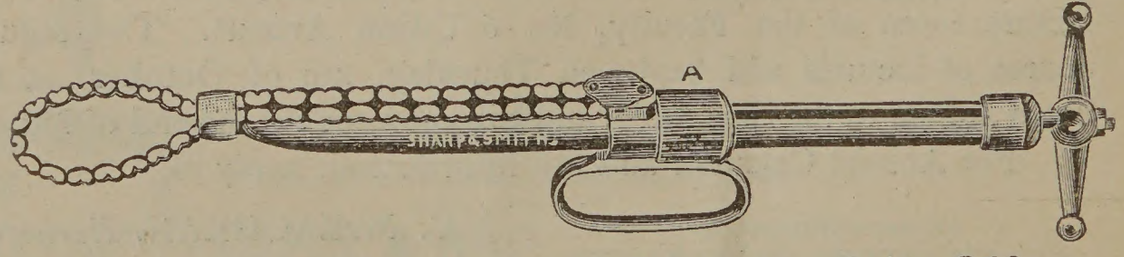

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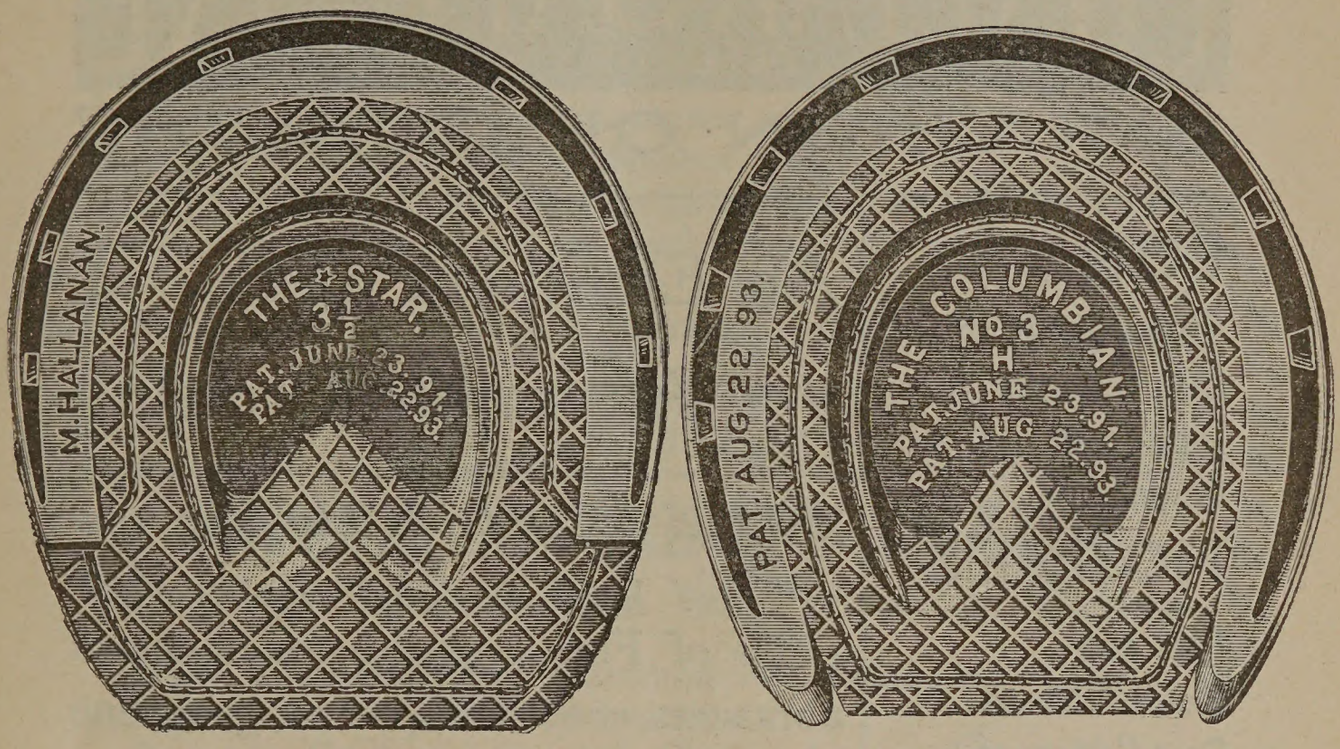

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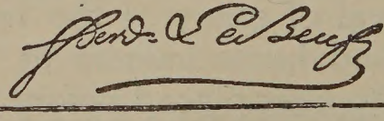

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VOL. XVI. *MAY*, 1895. NO. 5.

HORSESHOEING.[1]

BY R. S. HUIDEKOPER, M.D., VETERINARIAN.

HORSESHOEING dates from the development of the Christian era. The earliest histories we have of the use of horses date back probably 1600 or 1700 before Christ. In the first era of civilization the horse traveled over Europe, reaching the northern part of Denmark; but down to historical times the horse was probably only used irregularly, and, naturally, horseshoeing was not needed.

The first representation we have of a horse in historical times was about 2000 years before Christ. Simultaneously among the monuments of Nineveh and Babylon we have representations of the horse so distinct that they show the true Asiatic race. Following that are representations of the horse in Greek art, in Grecian sculpture. After Greek art had begun to affect Italian art we find representations of the horse so distinct that even the ornaments of the bit, with the reins and caparisons, appear. Yet there is no representation of shoes on a horse up to that time. Afterward, in Xenophon's account, which has been already referred to, and in all the accounts down to the time of Mithridates the Great, where he speaks of the cavalry being stopped on account of the horses' feet being sore, we have no representation whatever of the shoe of the horse. It is not

[1] A paper read at the April meeting of the New York County Veterinary Medical Association.

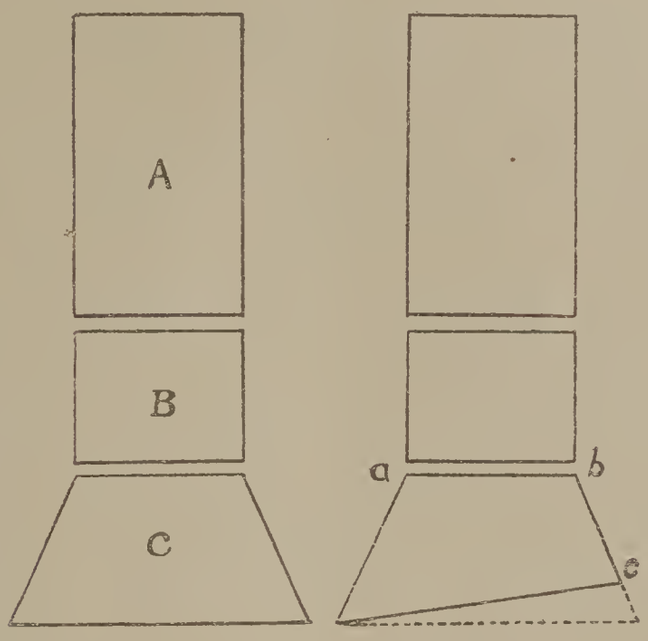
until about the second century that we find traces of the shoeing of the horse in certain shoes which are now in the Museum at Mayence, Germany, which evidently were only used as a protection to feet which had become sore—two shoes, one of them a flat plate with a metal cap coming to the front part of the hoof, and sets of rings to fasten it to the pastern; the other, a shoe consisting of a cup with four sets of rings to fasten it to the pastern. Such shoes undoubtedly could not have been used at all for any purpose beyond that of protecting a sore foot. About the fifth century, in Rome, we find horseshoes which began to approximate to those used to-day. The traces of horseshoes which have been found show evidently that they developed among the Huns, in the northern part of France among the Normans, in the neighborhood of the fifth century. A few centuries later, about the tenth century, at about the time of the early Crusades, from 1091 to 1200, the horseshoe had been developed to a far greater state of perfection, and the use of calks came in. The shoes of the first century were held on with two nails, sometimes with four nails. In the tenth, eleventh, and twelfth centuries shoes were found with ten and sometimes with six nails, with calks at the heels and toes. At an earlier period shoes were found among the Huns during their migrations, and they were in general use among the Normans, and in the northern part of Spain and in Italy. In the neighborhood of the fifteenth century the shoe had reached almost the perfection of the ordinary horseshoe of to-day. Among the Crusaders from Italy we find a horseshoe with four nails, evenly made. Since that time there has been little change except in certain modifications in special parts of the shoe.

I think I can best illustrate to you what the theory of balancing or levelling the foot is, by showing the foot in its transverse section, looking at it directly in front.

I give a representation of the foot with a few blocks of wood (Figs. 1 and 2). Fig. 1 represents a level foot as it stands on the ground, and Fig. 2 an uneven one. Of course, that outside part of the hoof, the wall, contains the pedal bone, which is the essential part, and that—Mr. Bonner was one of the first to use the word "suspension"—is suspended in the foot by the laminæ which holds it to the wall of the foot and is not supported by the bottom of the foot. The bone is not kept from going down, because there is a bit of sole underneath it, but it is kept from going down because it is suspended by a series of laminæ

which, if spread out, would cover a space of ten or twelve square feet. Then, fitting on top of that, we have the bone which we represent by the second block (Fig. 1 B), the pastern bone; then there is the second bone (Fig. 1 A) the os suffraginis. Then the shank bone, or the cannon bone, has on either side of it two small bones, the splint bones, which are only attached by fibrous tissue, and on the top of these is the knee.

FIG. 1. FIG. 2.



I am going above the foot, because, while I acknowledge all the importance given to the foot by the gentlemen who have spoken before me, there is a great deal more in a horse besides his foot. The stomach of a horse is of just about as much value as anything else. A horse with chronic lameness of the foot who feeds well three times a day will go forty miles as easily as a sound horse that does not eat well. There are a great many diseases, as has already been said, which originate above the foot, and which produce diseases of the foot secondarily. In a horse that has been lame for some time it is often a very difficult question to determine which has been the primary cause and which has been the secondary effect. Disease of the foot, in a majority of cases, produces trouble above. But in many cases the disease, which has originated above, will cause alterations in the foot below. If the foot is perfectly level treat the leg as you would a piece of machinery. But the piece of machinery must play perfectly and evenly on a perfectly even bearing. Treat the trouble exactly as they treated the piston

which ran the propeller of the *Gascogne*, which recently came into port so far behind schedule time, and which I see experts attribute to its bearings having been inaccurate. The instant you alter those bearings, and any slackness occurs on one side or the other, you will have an extra wear and tear. The horse swings his legs freely. He has a foot that comes down on its proper surface perfectly level. He takes a firm hold and goes on, and his leg swings out again just exactly as a bit of machinery or as the piston of a steam engine will work. The instant the bearings are altered, or it is made a little crooked, we alter the bearings of every joint from above. Suppose the foot to be represented by the block of wood (Fig. 2). Instead of a foot which is perfectly level (Fig. 1), suppose we take a foot which has been allowed by the blacksmith to become crooked, so that it stands higher on one side than on the other (Fig. 2 *a*, *c*). Then the whole leg above is thrown out of bearing. What is the consequence? The instant a horse comes down on his foot he strikes with the highest part of the foot (Fig. 1 A). That acts as a fulcrum. The foot bears over and we have two troubles as a consequence. In the first place, the leg tries to keep straight and it presses over to the side of the lower heel (Fig. 2 *c*). We have a pressure of the bone here into the foot. The bone, resting as it does on the pedal bone, instead of coming down squarely and playing there in its joint, is thrown down sideways, and there is a pressure on the pastern or navicular bones, and there may be a bruising of the bones. If the weight happens to strike a joint higher we have bruising the bone at the pastern, producing ringbone, or, instead of bone bruising, we have stretching of the ligaments on the opposite side. The periosteum of the bone is torn. We will go a bit higher than that. At the upper part of the leg we have a central shaft, the cannon bone, and we have two small splint bones at the side held by a fibrous tissue, and on top of that is placed the knee-joint. By a crooked foot the leg is thrown over. The leg is thrown down on the top of these splint bones, and we have a splint thrown out, because the horse fails to come down properly. If any of you have had gout, if you have had a sore toe, and you have to go along on one side of the foot or back on your heel, you know perfectly well how quickly you get sore up in your knees or your hips, and you do not know in what part of the leg the extra soreness lies. Yet all of that is secondary soreness coming from walking on a sore toe. Just so in the case

of the horse; the instant there is soreness in one part the animal attempts to save himself, and there comes a pain at some other point. Within a day or two I have had a horse with a lame foot whose shoulder on the opposite side was so sore that for a few days he could hardly bear the touch of a finger. He was working the muscles of one leg in order to save himself on the other side. There is much more to be said on this point, but I shall not occupy any more of your time in regard to it, but will now go to the solution of it, which I suppose is what you want to know.

The solution is that you must get farriers who are better educated. Now, I do not believe in all the statements about the farrier being such a beast as he is ascribed to be, or about his being absolutely vicious. There is just as much viciousness and ignorance in the majority of horse-owners as there is in the farrier. The horse-owner should take an interest in the shoeing, and should know that it is properly done.

I have had a great deal of experience with farriers, and I have found some very good ones. I have found better men in the country than in the city. Out in the country you get a farrier who not only shoes the horses in his neighborhood, but also does a bit of wheelwrighting and odd jobs of tinkering of wagons, and uses iron in various ways, training his son or a neighbor's son as an apprentice. He teaches these boys to be mechanics, and when they go to work to shoe a horse they are good workmen; they have some intelligence. But the labor-unions in the shops in our large towns and cities try to prevent the teaching of apprentices. They teach a boy to-day how to shoe when he cannot make a proper shoe. We ought to have our farriers properly educated. This is one of the few countries where the farriers are not properly educated. In Germany, Italy, France, and Russia they have schools in which farriers are taught. They teach them the anatomy of the horse's foot, so that when they nail a piece of iron on the foot they know what they are doing. They teach them the principles of the mechanical movement of the leg above, so that they are able to appreciate the deviations and the springing in and out of the leg, which indicates what may be the trouble with the foot. In the veterinary schools of France we had to go to the black-smith's shop and work two hours every morning. We had to learn how to forge a shoe properly, and to make horse nails, and when we got our diplomas we had to know something

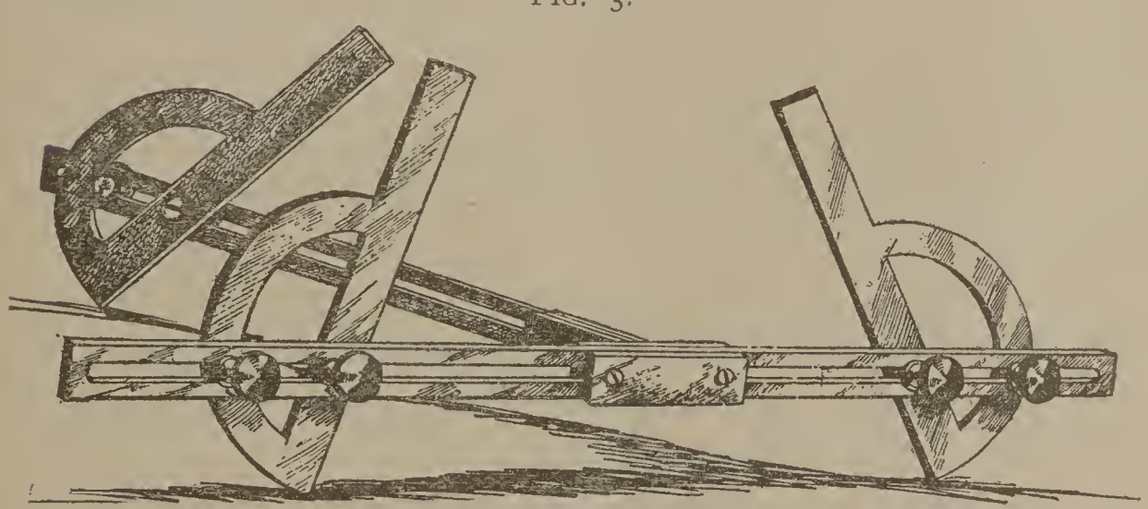
about shoeing. In the schools of London, Glasgow, Edinburgh and the schools in America they teach theoretically. In the school where I studied, as I said, we had to learn how to forge the shoes, and then to put them on a horse. In Philadelphia I made my students go to the blacksmith shop and make their own shoes and put them on. Within a few months the blacksmiths of Philadelphia and veterinary practitioners have established a school for farriers.

I think if we were to have a school for farriers we would find a very large number of young men who would take the course, and competent farriers could be turned out. If every man would take a little more interest in his own horses and in their shoeing, instead of leaving it entirely to people who are rather ignorant, and who are not interested in the matter, better shoeing for the horses would be the result. Every man has his own theory of shoeing. To my mind the theory of shoeing should be first to know the normal foot of the horse, which, in size and proportions, varies with the different breeds of horses. For instance, in the Shire of Clydesdale breed a large flat foot, with a very low heel, is a perfectly normal foot, and there contraction in the least possible degree is most easily produced, and is productive of corns and soreness in the navicular bone, while the thoroughbred can have a foot like a mule and travel perfectly sound. There should be an allowance made for the breed of the horse as to what his foot should normally be. We should give the farriers an education which would allow them to recognize what the normal foot should be, and how to make the foot perfectly level from side to side and from heel to toe, based upon the breed of the horse and according to what they judge to be the natural action of the horse, an action which is frequently changed and can be very much improved by shoeing. Then, after you have a perfectly good, normal foot, the principle of shoeing is to put on the simplest piece of metal which will prevent that foot from breaking under the artificial use to which we subject the horse. If the horse can go as he does on the plains, and choose his own movement in going, he can go for months and never wear his foot sore; but where we have the horse put on an artificial pavement, with a shoe on weighing three pounds, as I have seen farriers put on in Paris, and that shoe tears out in a week's work, then we have to adopt artificial means of protection. When we come to any accidental change

in the horse's gait, or the special uses to which he is to be adapted, then, of course we have to adopt special shoeing.

In levelling any horse's foot, after using my own eye I always let a horse teach me a certain amount. When I take up a foot and find that it is crooked, that it has a high heel or toe, or is high from side to side, I adjust it as far as my eye can properly do so, because I always do the rasping myself, and then get the blacksmith to put on the shoe as I direct and put in the nails. Then I ask the owner to send the horse out to 155th street and back. Then I let the horse teach me where I have made any mistake. If his foot is perfectly level he will come down squarely every time he steps. If his foot is higher at any one point than it should be he will come down at the highest point first and then lean over. The nails will be slightly worn more at the highest point than at the other side, and I know where I have got to level it more. I have a great many disputes with blacksmiths. The blacksmiths frequently think they know as much as I do, and probably more. I had an instrument made to show the blacksmith how to level the foot. (Fig. 3.) It is a

FIG. 3.



HUIDEKOPER'S PODOMETER.

triangle, set off in degrees, which I can apply to the bare foot and take the angles exactly. At the time I had my own farrier in Philadelphia he kept a regular record-book as to every horse that was shod. I had taken the absolute measurement of every horse's foot and had it entered in a large invoice-book, and in three weeks, when that horse came back to be shod again, and had been eased at his heels, so as to allow play, another drawing was made. It was interesting, sometimes marvellous, to see the change in the horse's foot and the ex-

pansion that had been effected by a perfectly simple shoe. We kept that up for some two years, and found it to be an excessively interesting study. I found it did a great deal of good with some blacksmiths when they found I could really prove to them that I was right in regard to the horse's foot being crooked. This was the only instrument I ever had made, and blacksmiths would often send to borrow it in order to verify some shoeing that they were doing themselves. Now, I think, if the owners will interest themselves a little more in their horses and in the way they are shod they will not find the farrier such an ignorant man as he is often claimed to be, and the horses will be a great deal better shod.

The Senate of New York State has unanimously recommended for passage the act exempting veterinarians from jury duty.

The Societies for the Prevention of Cruelty to Animals are waging intense opposition to the bill now pending before the Pennsylvania State Legislature legalizing the dehorning of cattle.

A recent appointment as an Army veterinarian was secured, after a thorough examination in which some fifteen competed, by one of the graduates of the School of Veterinary Medicine at the Ohio State University.

The strongest animals in the world are those that live on a vegetable diet. The lion is ferocious rather than strong. The ox, horse, reindeer, elephant and antelope, all conspicuous for strength, choose a vegetable diet.

Corn blades stripped from the stalks make good food for horses; being free from dust, horses wintered on the same are less likely to develop heaves. Racehorses half a century ago were fed on corn blades in preference to hay.

France has about 3,000,000 horses, and Germany has about 3,500,000. France has eight horses to 100 inhabitants. Germany has only seven and one-half horses to 100 inhabitants. The number of horses used in cities and towns increases every year in a more rapid proportion than the population of the same, largely attributed to the increased facilities offered in the cities for travel.

THE ANATOMY OF THE LARGE AMERICAN FLUKE (*FASCIOLA MAGNA*) AND A COMPARISON WITH OTHER SPECIES OF THE GENUS FASCIOLA, S.ST.

BY CHAS. WARDELL STILES, PH.D.,
ZOÖLOGIST, BUREAU OF ANIMAL INDUSTRY.

CONTAINING ALSO A LIST OF THE CHIEF EPIZOÖTICS OF FASCIOLIASIS (DISTOMATOSIS) AND A BIBLIOGRAPHY OF FASCIOLA HEPATICA.

BY ALBERT HASSALL, M.R.C.V.S.,

(Continued from vol. xvi., 1895, page 222.)

VI. Conclusions.

[These conclusions were printed as a summary of this article: Notes sur les Parasites, 25: La Grande Douve Américaine (*Fasciola magna*); Bul. Soc. Zoöl. d. France, xix., No. 6, séance du 22 Mai (pub. Juin), pp. 91–94.]

The conclusions reached in this paper may be briefly summarized as follows:

1. The generic term *Fasciola* must be retained for flukes of the type of *F. hepatica*.

2. As flukes of this type can be considered *F. magna*, *F. gigantea*, and *F. Jacksoni*.

3. The union of *D. palliatum*, *D. delphini*, *D. Rochebruni*, and *D. oblongum* with the four above-named species of *Fasciola* in a sub-genus of the genus *Distomum* results in the formation of an unnatural and artificial group.

4. Of these four species *D. oblongum* is too poorly described to be taken into consideration; it is probably a *Dicrocœlium* second section.

5. The other three species agree but slightly with *Fasciola*, possessing a somewhat branched intestine, but differing in other very important characters.

6. I therefore propose to follow Cobbold in limiting the genus *Fasciola*[1] (type species *F. hepatica*) and suggest the following as a revised generic diagnosis:

[1] Cf. Règles de la Nomenclature des êtres organisés, Art. 34

Fasciola (Linné, pars), type species *F. hepatica.* Hermaphroditic flukes, of the family *Distomidæ*; body large, broad, and more or less leaf-shape (flat), with a more or less distinctly developed anterior conical portion bounded from the broad posterior portion by the ventral acetabulum; œophagus present; intestinal cæca profusely branched; ovary branched, situated for the greater part anterior to transverse vitello-duct; vitellogene glands highly developed and occupying the margins of the posterior portion, ending anteriorly at about the height of the acetabulum; uterus in form of a rosette, anterior to transverse vitello-duct, dorsal and posterior (caudad) to the acetabulum; genital pore about midway between acetabulum and oral sucker; testicles branched, situated for the greater part posterior to transverse vitello-duct; penis present. Oviparous.

Hab. Liver and lungs of herbivorous mammals.

7. The following table will aid in determining the four known species of this genus; the characters relating to *F. Jacksoni* and *F. gigantea* are not satisfactory, but are the only ones which can be taken at present:

1.	Median branches of intestinal cæca[1] long; œsophagus absent; body orbicular, 12 to 16 mm. long by 8 to 12 mm. broad; hab., biliary ducts of Indian elephant . . . *F. Jacksoni*	p. 144, 1895	
	Median branches of intestinal cæca short; body rarely orbicular .	2	
2.	Œsophagus[1] extends nearly to acetabulum; body lanceolate, 75 mm. long, 3 to 12 mm. broad; anterior conical portion distinct; posterior extremity obtuse; hab., biliary ducts of giraffe . . . . . *F. gigantea*	p. 139, 1895	
	Œsophagus extends half-way to acetabulum or less . . .	3	
3.	Body, flesh-colored, very large and thick, rarely orbicular; 20 to 100 mm. long by 11 to 26 mm. broad; anterior conical portion not very distinct from posterior portion; posterior extremity bluntly rounded; vitellogene glands situated ventrally of the intestine; œsophagus generally one-and-a-half to three times as long as the pharynx; hab., liver and lungs of cattle, deer, etc. . . . . *F. magna*	p. 172, 1894	
	Body, 25 to 35 mm. long by 2 to 4 mm. broad; anterior conical portion much more distinct than in the case of *F. magna*; posterior extremity bluntly pointed; vitellogene gland both dorsal and ventral of intestine; œsophagus rarely one-and-a-half times as long as the pharynx . . . *F. hepatica*	p. 299, 1894	

8. If the genus *Fasciola* s.st. is not recognized as distinct from the other distomes, then the generic term *Fasciola* must be used in place of *Distomum.*

[1] Based upon Cobbold's figures.

9. As Cobbold failed to state definitely what species he took as the type[1] of the genus *Distomum*, I propose, in order to place the matter beyond doubt, to accept the first species in Cobbold's list, *i. e.*, *Distomum lanceolatum*, as type-species of the genus.

10. As *F. hepatica* was the only species of Dujardin's sub-genus *Cladocœlium*, and hence the type of that sub-genus, the name *Cladocœlium* must fall into synonymy with the separation of *Fasciola* from *Distomum*, and can accordingly not be retained in the genus *Distomum*.

11. *D. palliatum*, *D. delphini*, and *D. Rochebruni*, upon being rejected from the genus *Fasciola*, can be left in the collective genus *Distomum* for the present, but as they differ considerably from the type (*D. lanceolatum*), it is doubtful whether they can remain long in this genus.

12. *F. magna* agrees very closely with *F. hepatica* in the anatomy of the adult, the egg and the miracidium, and it is very probable that the development will be found to be very similar.

13. *F. magna* has a wide distribution in the United States of North America, being very common in certain Southern States (Texas); it has been found also in Northern and Western States (New York, Iowa, Arkansas, Indian Territory, and California); but its frequency in some of these latter States is not determined.

14. It is found in both domesticated and wild animals, sometimes alone, sometimes associated with *F. hepatica*.

15. It has, as Bassi has shown, been introduced into Italy by *Cervus canadensis*, imported from North America.

16. Its close resemblance to *F. hepatica* suggests that it is but a comparatively short time since these two species have become distinct from each other; it is, however, impossible to state whether it existed in this country in wild animals before the discovery of America, and has since become a parasite of domesticated cattle, or whether the parasites were originally introduced with domesticated animals (as *F. hepatica*), and have since then become differentiated into a new species, *F. magna*, which has spread to wild animals.

[1] Cf. Règles de la Nomenclature des êtres organisés, Art. 35 (1889, 1893).

VII. Compendium of Fasciolas arranged according to their hosts.

A * before a specific name signifies that I have examined specimens of the parasite in question from the host given; the other cases are compiled. Where the specific name of the parasite is in italics, this species is not given for the host in question in von Linstow's *Compendium* or *Nachtrag*. In cases where the parasite is queried (?) the species has been reported for the host in question, but there is probably a mistake in the specific determination.

Antilope picta Pallas, 1777, *vide* BOSELAPHUS TRAGOCAMELUS (Pallas), 1767

BOS BUBALIS L. Indian buffalo.
F. hepatica.

BOS TAURUS. Domesticated cattle.
*F. hepatica.
**F. magna.*

BOSELAPHUS TRAGOCAMELUS. Nilgai or blue bull.
F. hepatica.
F. magna.

CAMELUS BACTRIANUS L. Bactrian camel.
F. hepatica.

CAPRA HIRCUS L. Goat.
F. hepatica.

CAVIA COBAYA Schreb. Guinea-pig.
F. hepatica.

CARIACUS VIRGINIANUS. Common deer, Virginia deer.
F. hepatica (?).
F. magna.

CASTOR FIBER. European beaver.
F. hepatica.

Cervus aristoteles Cuv., 1825, *vide* C. UNICOLOR Bechstein, 1799.

CERVUS CANADENSIS. Elk or wapiti.
F. magna.

CERVUS DAMA. Fallow deer.
F. hepatica (?).
F. magna.

CERVUS ELAPHUS. Stag.
F. magna.

CERVUS UNICOLOR. (C. aristoteles). Sanbur, rusa deer.
F. magna.

ELEPHAS INDICUS. Indian elephant.
F. hepatica (?).
F. Jacksoni.

EQUUS ASINUS. Ass.
*F. hepatica.

EQUUS CABALLUS. Horse.
*F. hepatica.

FELIS DOMESTICA. Cat.
F. hepatica. (*Vide* Stossich '92, p. 8.)

GAZELLA DORCAS. Gazelle.
F. hepatica.

GIRAFFA CAMELOPARDALIS. Giraffe.
F. gigantea.

HOMO SAPIENS. Man.
F. hepatica.

LEPUS CUNICULUS. Wild rabbit.
F. hepatica.

LEPUS CUNICULUS DOM. Domestic rabbit.
F. hepatica.

LEPUS TIMIDUS. Hare.
F. hepatica.

MACROPUS GIGANTEUS. Great gray kangaroo.
F. hepatica.

ORCA GLADIATOR (*vide* p. 302). Grampus "Killer."
**F. hepatica.*

OVIS ARIES L. Sheep.
*F. hepatica.

OVIS ARGALI. BODD. Argali.
F. hepatica.

Portax picta Horsfield, *vide* BOSELAPHUS TRAGOCAMELUS (Pallas), 1767.

SCIURUS VULGARIS. European squirrel.
F. hepatica.

SUS SCROFA DOM. Swine.
F. hepatica.

POSTSCRIPT. Since the manuscript of this article was finished over a year ago, several points have come up which it may be well to cover briefly in a postscript.

Type specimens of F. gigantea *and* F. Jacksoni. Prof. C. Stewart, of the Royal College of Surgeons of London, writes me that there are no duplicates of these specimens in their museum.

F. hepatica *in Honolulu.* Dr. A. R. Rowat has forwarded specimens of *F. hepatica* from a horse, and in his letter (September 14, 1894) mentions a case of the occurrence of "a fluke" in a woman; only one specimen was passed, details of which were not given.

The generic term FASCIOLA. Prof. Max Braun, in reviewing *Notes sur les Parasites*, 25, speaks against my position in using the generic term *Fasciola* in the most emphatic language. As the latter part of this paper appears after Braun's review, a reply may possibly be expected from me by some of my friends. In the review, however, the German helminthologist promises to return to the subject upon the appearance of the present paper, so that any addition to my article upon this score at present would be premature. I will simply state that notwithstanding Braun's views, which, by the way, are simply stated and not supported by arguments, I see no reason for altering my opinions upon this subject as expressed a year ago. That I do not stand alone in the views expressed regarding *Fasciola* is shown by the appearance within a short time of two scientific publications by the French helminthologist, Raphaël Blanchard, in which *Fasciola* is adopted.

Stossich (1892, I Distomi degli Ucceli—*the same paper in which his subgenus* Polyorchis, 1888, *is given generic rank, cf. and strike out foot-note p. 737 of note* 30) adds *Distomum holostomum* Rud., 1819, and *D. sulcatum* Linston, 1883, two avrian parasites, to the genus *Cladocœlium* (*-Fasciola*). There are no specimens of these parasites in the B. A. I. collection, but judging from the descriptions given I cannot see that they have any generic relationship with *F. hepatica.*

The kangaroo is capable of leaping from sixty to seventy feet. The longest recorded leap of a horse is thirty-seven feet.

Cropping dogs' ears is likely to become less common in England, where recently two persons were sent to jail and an owner fined for the offence.

ANTISEPTIC SURGERY.[1]

BY H. A. SPENCER, SR., V. S.

MR. PRESIDENT AND GENTLEMEN: For several years I have been deeply interested in trying to fathom the mystery of the most humane and expeditious method of treating surgical and accidental wounds. A number of years ago our journals fairly teemed with the successful results of antiseptic surgery, but the technique was either so poorly described, or rendered unavailing by the demands for extensive and expensive paraphernalia, that I, after many crude attempts, abandoned it, with the firm conviction that it had its origin in the vagaries of some visionary theorists, and was entirely impracticable in ordinary practice; therefore, I would be content to follow the time-honored custom of our fathers, and welcome the appearance of laudable pus.

But a friendly intercourse with a number of medical gentlemen who were firm adherents to modern surgery finally led to numerous invitations, which were eagerly accepted, to attend surgical operations where the aseptic and antiseptic methods were employed in the most minute detail; and, gentlemen, the revelation was made plain to me that my former attempts had been not anti- but candidly pro-septic surgery.

That the study of bacteriology has been productive of some of the most startling discoveries as to the cause of disease is readily conceded by all students of medicine. Among the most brilliant results of these investigations none have been more gratifying to the progressive practitioner than the perfecting of a methodical and scientific manner of conducting surgical operations with a view to complete asepsis.

We are accustomed to hear operators who have gleaned some theoretical knowledge of bacteriology from the casual perusal of our literature, or from the lectures of their college professors, discourse learnedly on the dangers of wound infection and the various methods to be employed to prevent such disaster; but where we witness their attempts we find them fully as inconsistent and abortive as the crude attempts that I made in the same line in my early efforts to emulate the successes of those scientists who related their providential achievements in

[1] Read before the California State Veterinary Medical Association, March 13, 1895.

the columns of the *Review*, but forgot the importance of giving their readers a lucid description of the details that blended inseparably perfect the modus operandi.

It is patent that a surgeon who would wear the laurels of a successful operator in modern surgery should have a keen conception of the relative meaning of the terms sepsis, asepsis, and antisepsis, and a fixed determination to use the knowledge in its strictest sense in his surgical practice, for the omission of a single detail, however minute, in the performance of an aseptic or antiseptic operation will in the majority of instances be the means of introducing infectious material into the wound. It is to be also remembered that the sins of commission are frequently as fertile a production of evil as that of omission. Therefore, he must not depart from the minutia of the rules laid down for his guidance.

Aseptic is a word derived from the Greek, and is defined as not liable to putrefaction; but surgically it means something more than this, as our hands, apparel, and instruments are not liable to putrefaction, or at least are only remotely so, while, unless they have been sterilized and are kept sterile, they are not aseptic, but are mediums whereby we may convey the most disastrous infections to wounds. Therefore, by aseptic we mean to bring about a condition in which there is a complete absence of infectious or septic material, or, in other words, excluding from the seat of operation and from our hands and those of our assistants, from our instruments, sponges, dressings, or any material that we may elect to use in our operation, all micro-organisms of a pathogenic nature.

And though we may have observed with most scrupulous care all the details for complete asepsis, still it is very likely that fresh wounds may contain organisms that are either numerically too few, or are non-virulent, and hence do not give rise to infection. Indeed, no method has yet been discovered by which the skin can be rendered absolutely sterile. And there are micro-organisms in cutaneous glands that the most thorough disinfecting fails to remove, and these in a suitable soil are capable of producing inflammation and suppuration. Therefore, it is patent that we should be as thorough as possible, for if these bacteria should be of a virulent nature, and the patient of an anæmic character, the tissue, fluids and cells would not exercise the germicidal power they are ordinarily endowed with, and infection would undoubtedly occur. In short, if we have not had at

least an elementary training in bacteriology, we should unswervingly follow the detailed instructions of those whose researches in that field of science have made them proficient tutors to guide and direct us.

To those who thoroughly understand the phenomena that produces suppuration in wounds and general septic conditions, they are not a source of wonderment. To them it is only remarkable that these conditions do not exist more frequently. Hence, I say, that no matter how sound an anatomist or how skilful an operator you may be, unless you practice in detail the rules of asepsis when it is possible (which, unfortunately for us of the veterinary persuasion, is not as frequent as we would wish,) you will fall out of the procession of advancement that modern surgery is making.

The terms sepsis or septic infection, as has been indicated, includes all, or nearly all, the general or local surgical infections caused by bacterial invasion. The chemical products of bacteria are more the cause of disorder than they are themselves. Several varieties of micro-organisms when they gain entrance to the general circulation multiply, and then a general blood-infection is the result, which frequently proves fatal. With or without extensive multiplication of micro-organisms in the blood, the system may be overwhelmed with bacterial poisons. This condition is known as acute septicæmia. Localization of pyogenic bacteria in the organs, especially when they have been transported by emboli, give rise to multiple abscesses, and is called pyæmia, and when both conditions co-exist it is called septic-pyæmia.

Under the head of local infections are grouped together all those accidents which befall wounds: suppuration, traumatic fever, hospital gangrene, wound-diphtheria, and erysipelas. Antisepsis: In the employment of antiseptics we use the best means that can be devised for destroying the bacteria that exist both in a wound or upon the implements that shall come in contact with a wound, and here it is proper to state that the terms disinfectant and antiseptic should not be confounded. The former relates to those agents which destroy pathogenic or putrefactive organisms, and are germicides, while antiseptics only arrest putrefaction and fermentation, but do not necessarily kill the micro-organisms. A deodorizer does away with stench, but may not have either antiseptic or disinfectant properties.

While bacteriologists have shown us that infection rarely

takes place from the air, they have also demonstrated that it is most frequently brought about by contact, thus we are enabled to understand the importance of preventing the introduction of bacteria on instruments or the hands of the operator and his assistants.

The association of laboratory with operative clinical experience should continue, and we cannot forego advising the expediency of the surgeon and the bacteriologist laboring together in a field that promises so much for the instruction of both when the results of their investigations are brought into comparison.

But our enthusiasm for aseptic methods should not allow us to lose sight of the necessity of perfect mechanical modes of procedure. In the matter of technique, aseptic operations call for no inconsiderable preparation; first, the operating table should be sheltered and occupy a reasonably clean room. All instruments should be subjected to a thorough cleansing and be placed in a boiling sterilized water, after which they should be distributed in convenient trays or shallow pans which should contain a sufficient amount of carbolized hot water to keep them submerged. Several gallons of sterilized salt water should be provided for use in a large fountain syringe, preferably made of metal, to admit of its sterilization. A quantity of towels, and enough loose smocks or aprons for the operator and his assistants should be prepared by boiling in a solution of 1 to 1000 of bichloride of mercury, and afterward dried and subjected to a heat of 212° in an oven, when they may be carefully wrapped up until needed; sponges should be made, not purchased. They may be prepared by taking pieces of antiseptic gauze about six inches square and placing wads of antiseptic cotton in their centre and tying them together, thus forming a very convenient cheap absorbent. There should be an abundance of these, and after having been subjected for some time to the heat of the oven, they should be packed away in sterilized wide-mouthed fruit jars.

A large piece of rubber or oil-cloth should be sterilized to be used between the field of operation and the table. The patient should be prepared for the operator by an assistant, who should see that the parts immediately adjacent to the seat of operation are shaved and thoroughly scrubbed with, first, clean hot water, soap, and brush, and then thoroughly rinsed by some antiseptic fluid from the fountain syringe, after which this part must be left untouched except with sterilized hands. The patient may be

now placed upon the table and anæsthetized while the operator and assistants are preparing their hands. This should be done in the following manner: First, a thorough scrubbing with hot water and soap, then a rinse in a carbolic solution, then in a strong solution of permanganate of potash, then in a solution of oxalic acid, and a final douche from the fountain syringe, after which they may be dried by wiping on one of the sterilized towels.

From then on those concerned must be impressed with the fact that they are to touch absolutely nothing that is unsterilized; wiping off perspiration, blowing the nose, scratching the face, or putting hands in the pocket must be strictly forbidden.

The assistants are then each assigned their individual duty—one to manage the nozzle of the fountain syringe, one to hand sponges and instruments, one to sterilize instruments that have been used and are dirty, and one to see that the sterilized towels completely surround the field of operation, that the operator's hands or instruments may not come in contact with non-sterilized objects. The instruments, dressings, sponges, basin for rinsing hands, fountain syringe, etc., being now placed in convenient situations by some of the assistants, the surgeon and his assistants should be helped into their smocks and the operation may be proceeded with. And, gentlemen, if you will follow these details and finally cleanse your wound of all clots and débris, and then make your wound impervious to the air with a thoroughly antiseptic dressing, you will have an aseptic wound, and it will never require but the one dressing, for it will heal without stench, swelling, or suppuration, and there will never be an appreciable elevation of temperature.

Rubbers for dogs are the newest products of civilization. Salted tracks on our streets give rise to sore feet in dogs, hence this new invention. Dogs in Arctic regions used for pulling sleds have leather toe-pieces fastened with thongs.

The bill to again extend the time of registration of veterinarians for a period of six months in New York State has been quashed in the Senate through the efforts of the Legislative Committee of the New York State Veterinary Medical Association. We sincerely trust that this is the last time they will have occasion to block such a movement.

PHYSIOLOGY OF THE KIDNEY.[1]

BY H. BUSMAN, STUDENT.

REVIEW OF ANATOMY.—*Compound tubular glands.* Uriniferous tubes, bloodvessels, nerves, connective tissue, fibrous capsule. Sectionally, an external or cortical portion; internal or medullary. Cortical portion, dark reddish brown in color. Medullary, paler in color, denser, fibrous in appearance. Cortical portion contains Malpighian bodies, consisting of capillary loops, covered by Bowman's capsule; primary and secondary convoluted tubes; primary form, the loop of Henle; secondary, the tubes of Bellini.

Blood supply. Renal arteries, interlobular arteries, vasa afferentia, vasa efferentia, glomerulus, vasa recta. The three different sets of capillary vessels control the pressure and rapidity of the flow of blood in these organs as follows:

1. The capillaries in the glomeruli are loops collected into a tuft by their covering of epithelium. On account of (*a*) the afferent artery ending abruptly in the capillaries, and of the efferent vessel (*b*) being smaller than the afferent, and (*c*) breaking up into a secondary plexus of capillaries, the pressure and velocity within the glomerulus must be great.

2. The secondary capillary plexus investing the tubules can only be under comparatively trifling and less variable pressure (*a*) on account of the blood having first to pass through the capillaries of the glomerulus, (*b*) their sectional area is enormous when compared with that of the glomerular vessels, and, therefore, the flow of blood must be slow in proportion.

3. The straight vessels have long-meshed capillaries, which lie between the looped and straight tubules. In these straight vessels the blood flows with greater rapidity than in those around the convoluted tubules. The pressure of their blood, though less than that in the glomeruli, is greater than that in the interlobular capillaries.

The nerves of the kidneys consist of a number of small branches running along the renal artery and coming from the solar plexus, which is formed by the splanchnics and branches from the superior cord of the vagus. That the whole of the

[1] Read before the Ontario Veterinary College Medical Society.

nerves do not come from the splanchnics is proven by stimulation of a sensory nerve of the medulla oblongata, or of the spinal cord in the neck; will cause contraction of the renal vessels after both splanchnics have been cut, and section of the splanchnics does not always cause the renal vessels to dilate.

The nervous centre for the renal artery is like the chief vasomotor centre for the body generally in the medulla oblongata; some say that there are also subsidiary centres in the spinal cord and in the solar and mesenteric plexuses.

There are four centres in the medulla—a vaso-constrictor, vaso-dilator, secretory and inhibitory-secretory.

FUNCTIONS OF THE KIDNEY.—It has to get rid of all of the impurities of the blood, whether the result of normal or pathological change; it eliminates all injurious, useless or superfluous matter. We may see, then, that the kidney has a threefold action:

1. They remove from the body excess of water.
2. They excrete waste products.
3. An arrangement for the retention of water in the body by its reabsorption after it has washed out the waste products.

These functions are performed by three separate portions of the kidney:

1. The Malpighian corpuscles by a process of *osmosis* eliminate water along with some solids.
2. The convoluted tubules with epithelial cells are, in all probability, the chief structures for excreting waste products.
3. Usually one or more constrictions in the tubule serve for the purpose of preventing too rapid exit of the water, and thus allow time for its reabsorption in cases where its retention is desirable.

The process of secretion in the kidney was regarded by Bowman as consisting of the filtration of water from the vessels of the glomeruli into the tubules and the excretion of waste products by the epithelium lining the tubules. Ludwig, however, came to look upon it rather as a process of filtration and reabsorption; according to him a dilute solution of urea and salt was poured out from the Malpighian corpuscles and gradually concentrated by the absorption of water in its passage along the tubules. This theory had so many facts in its favor that it was for a long time exclusively adopted; but, latterly, Heidenhain, in an admirable series of experiments, has shown that such substances as *indigogen* are certainly excreted by the epithelium

of the tubules. At the same time Hufner has shown by a comparison of the kidney in fishes, frogs, tortoises, birds and mammals that the form of the tubule closely agrees with that required for the reabsorption of water in each case.

Fishes, living as they do in water, do not require any apparatus for its retention in the body; in them, therefore, the tubule is short and wide, without any constriction to retard the outflow of fluid. In frogs we must have provision for the retention of water in the body, as in them evaporation takes place freely from the skin; in them we find, as might be expected, the tubule, and especially the contracted portion, very long. In tortoises, where no evaporation can take place, the tubule is short.

This, then, shows that the ideas advanced by Bowman and supported by Heidenhain are in the main true; the reabsorption of water, on which Ludwig lays so much stress, is also an important factor in the secretion of urine under different circumstances.

Circumstances modifying the secretion of urine. The amount of urine secreted depends very much on the difference of pressure in the Malpighian corpuscles and the tubules, for if the ureter be tied the pressure of urine in the tubule is increased, so that secretion is diminished, or even arrested, though the blood-pressure in the artery is great. A similar effect is produced by ligaturing the renal vein, for the blood accumulating in the venous plexus surrounds and compresses the tubules, and so prevents the flow of urine through them. A similar condition may occur from cardiac or pulmonary diseases that cause venous obstruction. But, unless under these exceptional circumstances, which alter the pressure in the tubules, the rapidity of the secretion of urine depends upon three factors:

1. Arterial pressure in the glomeruli. 2. The composition of the blood. 3. Agents acting on the secretory centres.

The pressure in the glomeruli may be raised by: 1. Increased arterial tension generally, which may be brought about by greater action of the heart, or by contraction of the bloodvessels in other vascular areas; by nervous stimulation, exposure to heat or cold, or the action of drugs. 2. By increased tension locally, which may occur by dilatation of the renal arteries, *e. g.*, from secretion of the vaso-constrictor nerves or stimulation of the vaso-dilators.

The pressure of blood in the glomeruli may be diminished

generally: 1. By failure of the heart's action. 2. By dilatations of the vessels of large areas, as the intestines, muscles or skin, which may be caused by exposure to warmth, by the action of drugs or by paralysis due to nervous injury.

The pressure in the glomeruli may also be diminished locally: 1. By section of the vaso-dilators. 2. By stimulation of the vaso-constrictors.

The composition of the blood affects secretion: 1. By dilution of the blood, causing excessive secretion, which may be caused by drinking a large quantity of water, or some specific disease. 2. Blood filled with effete material stopping the secretion.

Agents acting on the secretory centres may effect secretion: 1. By stimulating the secretory centre. 2. By stimulating the inhibitory secretory centres.

Mode of Action of Diuretics.—From what has been said it is evident that diuretics may act in several ways. They may act: 1. On the circulation in the kidney, raising the pressure in the glomeruli; (*a*) locally, by contracting the efferent vessels or by causing dilatation of the renal arteries, and thus increasing the supply of blood to the kidney; (*b*) generally, by causing the contraction of vessels in other parts of the body. 2. Other diuretics may act on the secreting cells of the tubules, and may increase both the amount of water and of solids excreted by them.

Diuretics may be classified as stimulative and sedative. The sedative class agrees very closely with the one we have just indicated as acting on the kidney through the circulation; (*a*) such as dilatation of the afferent vessels, by alcohol, nitritis, sweet spirit of nitre, which act either by stimulating the vaso-dilating nerves or paralyzing the vaso-constrictor nerves; (*b*) contraction of the efferent vessels by digitalis, strychnine, broom, buchu, juniper, turpentine, copaiba and cantharides, which are said to act by stimulating the ends of the vaso-constrictor nerves in the vessel wall. The ends of the secretory nerves in the cells may be stimulated by urea, caffeine, calomel, potassium acetate and other saline diuretics.

From what we said of the action of diuretics it will readily be admitted that we may hope to do much more by combining them than by using them singly.

Thus we may see that digitalis in large doses, instead of acting as a diuretic, may completely arrest the circulation and stop

secretion. If, however, we combine it with some drug which will produce dilatation of the renal vessels, *e. g.*, sweet spirit of nitre, while the general blood pressure remains high, we will greatly increase the circulation through the kidney and have the desired effect.

DISTEMPER IN DOGS.

BY W. H. MARTENET, D.V.S.

CANINE distemper is a disease prevailing all over the world, is of an infectious and contagious type, and extends to a few other species of animals, but is more commonly seen in the canine. It has no predilection for age, but is of a more virulent character in younger dogs, most likely on account of the inability of the undeveloped animal to understand the weakening effects of its attack. It is more enzootic in its character than otherwise, although it at times assumes an epizootic nature, and then is more virulent in its effects. This disease will admit of discussion at this time, when dogs have a high commercial value, and since so much loss is felt by its inroads on the kennels of breeders. The tendency at present is toward the raising of well-bred dogs, not only on account of their commercial value, but because this animal is capable of being a good friend to man, possessing a rare degree of intelligence for a brute and susceptible to man's friendship as no other animal is.

Dog shows during the winter months are the proper things, and at them congregate canines of many breeds from many States, and many of the animals represent to the owners goodly sums of money, and often realize for them either in stud fees or sales amounts that would seem great to the non-lover of dogs. At these shows, as happens at all live stock exhibitions, animals are shown that come from infected sources, and the result of their visit is the spread of the diseases incident to the species; thus it is that infection is spread, and thus it will ever be in all such shows unless a strict system of inspection is adopted that will preclude to the greatest extent the admittance of infected animals to the bench or stall.

Distemper is invidious in its advances, and often the source of infection is obscure, but if proper search is made, it can

usually be ascertained. There is in my mind no doubt as to the disease emanating from an infection and never arising spontaneously. An incident in my practice tends to prove this assertion: A Chesapeake dog, five years old, was taken with all the symptoms of distemper, and from inquiry I learned that this animal but rarely went on the streets and had not for a long time prior to the time of the attack, yet he now had a serious attack of the disease. The lady owner, on racking her brain for some cause for the infection, remembered that there had been a disreputable-looking cat, with mattery eyes and of melancholy mien, roaming about the yard of the premises sometime before, thus explaining the source of the infection for her dog.

This disease is peculiar in that it has numerous complications and sequelæ, and simulates, as is asserted by some authorities, measles in man; and there is no doubt that in the course of time the analogy will be traced between it and some disease in man. First a bronchial affection is noted, that may run on, involving the lungs to a greater extent. Intestinal disturbances are a frequent complication, and may pass away readily or continue to a serious end. Nervous complications are also frequent, and often persist for a long time after the animal has otherwise recovered from an attack of the disease. The nervous complications may be acute inflammatory conditions of the cord or brain, showing themselves during the activity of the attack, or they may be sequelæ in the way of an acute or chronic chorea, or partial or total paralysis of one or more members, principally, however, the hind legs. Choreaic movements are noted following attacks of distemper, and often continue during the life of the animal, being seen more frequently in the legs, sometimes in the head and neck, rarely in the jaws. The eye is intimately involved in distemper; in the great majority of cases conjunctivitis is seen, but occasionally we may meet with a case in which the eyes escape, then the attack is extremely mild. The eye trouble may remain benign; more often, however, it increases in seriousness, affecting the cornea mainly. I have a case in hand in which the sequel has been an inflammation of the optic nerves, resulting in a nearly total loss of vision, and which is improving, but slowly, under stiff doses of strychnia. These eyes had the appearance at first of a simple ophthalmia of rather severe type, but after the application of atropia and boric acid wash for three or four times the lids were carried widely opened, exposing a highly-dilated iris that fooled me for

several days. After the dilatation continued for four or five days, however, I noted the trouble, and by consent of the owner called in an oculist, who bore out my diagnosis, and advised more heroic doses of strychnia than the dog was being given by me. Improvement is but slowly taking place, and the prognosis looks unfavorable.

After a dog has contracted distemper it is usually an easy matter to diagnose the trouble.

A dulness is first seen that is unusual, anorexia, staring coat, redness of the conjunctiva, disposition to lie in cool or retired spots, shivering, followed by feverishness, much thirst, scanty urine, constipation or diarrhœa, and a cough that looks more like efforts at vomiting than a cough proper and that is paroxysmal in nature. Sometimes an eruption is seen on the belly and thin-skinned parts of the legs in the shape of small elevations that are well defined and that proceed to vesication, then are covered by scab. These vesicles are not always present. These symptoms follow a stage of incubation that is obscure and exhibiting symptoms that can be relied upon.

After the disease has well started the cough increases and is accompanied by retching and gagging that sometimes cause the expulsion of a clear viscid fluid principally composed of saliva; sometimes of a greenish matter, consisting mainly of bile when the disease is complicated with hepatic disturbances; but the stomach is usually emptied of its contents during these paroxysms. The anorexia persists and causes emaciation; the thirst is intense, and from symptoms shown the fever is evidently great. In young dogs at this time epileptic convulsions are often present, denoting the participation of the brain in the effects of the disease; and this is always an unfavorable condition of affairs that will seldom respond to treatment and generally ends in the death of the patient. The eyes may now exhibit a discharge of a yellowish, gluey matter, accompanied by an opacity of the cornea, denoting the presence of keratitis. There is also a copious discharge from the nostrils of an at first clear, then turbid, sticky mucus that continues for quite a length of time. These symptoms may gradually disappear under treatment, or they may increase in intensity, and then we see a rapid loss of flesh, with great weakness; the discharge from the eyes and nose is great, and the odor is very disagreeable; the diarrhœa, which is always seen in this condition of the disease, is copious and also extremely fetid in character, and may have

streaks of blood in it; the prostration is great, and the animal can move about only with great difficulty; the symptoms now increase in severity and continue until death ensues from exhaustion. If nervous symptoms have developed, the convulsions are frequent, being accompanied by moans and sharp cries that are of unusual sound, denoting serious involvement of the brain, and continue until a state of coma is reached, when death shortly ensues. If the eyes have been specially affected the conjunctivitis is followed by a keratitis that may run on to ulceration of the cornea and loss of the contents of the members, or a chronic opacity of the cornea may result with consequent partial or total blindness. If the lungs have been the seat of the principal trouble, the bronchial irritation of the first few days may develop into bronchitis, involving the smaller bronchii and capillaries, and then broncho-pneumonia supervenes with a general breaking down of the lungs, resulting in death.

The treatment of distemper is varied, and especially so if one follows the course laid down in the numerous dog-books, whose number is legion, and whose value is equal that of the great number of horse-doctor works that are scattered so freely among the laity. Many advise on the start the administration of an emetic, followed by a cathartic to clean out the system of the animal, of the infection, probably. This, in my mind, is a very improper start, and one which, instead of relieving, tends to weaken the animal and lay it open to the debilitating effects of the disease, and also to start a beautiful case of diarrhœa that is hard to control. Distemper is a disease that runs a regular course, and nothing will cut it short, therefore the plan of treatment is to keep the patient in good hygienic condition and allay presented symptoms. There is great nausea, which is to be allieviated and overcome by calmatives, such as prepared chalk, sulphite of soda, hydrocyanic acid, lime-water, etc.

If constipation exists, leave it alone, and nature will take its course in this regard in a day or two, and even a diarrhœaic condition may ensue. If diarrhœa is present, however, treatment in this direction is indicated, accompanied by stomachics and tonics. The febrile phenomena are to be relieved by quinine, antifebrin, sweet spirit of nitre, etc. If such prostration is noticed, stimulants, preferably alcoholic (since ammoniacal stimulants are too severe on the sensitive mucous tracts), in the shape of port wine, sherry wine, or any of the light wines,

or even whisky, may be given when prompt stimulation is needed.

When the bronchii and lungs are principally affected, anodynes, expectorants, etc., are to be used in connection with the stimulation of the chest with a strong lotion, and warm clothing with good ventilation of quarters provided. Nervous sequelæ are best treated by tonics, nux vomica or strychnia; general tonics acting well here, also, in restoring the general health, and with it the gradual improvement in the nervous symptoms ensues. The eye troubles are to be met with the customary washes, the milder the better, except when a serious aspect is noted, when more severe treatment is necessary. Nervous complications are treated mainly according to the condition exhibited; but usually demand nerve sedatives, principally the bromides.

The persistent refusal of food usually yields after a time to the stomachic and tonic treatment, and a gradual return of the appetite will take place. I have had dogs go without food absolutely for a solid week when suffering from distemper, and then make better recoveries than if they had been eating well during its course.

However, when much emaciation exists and the appetite is poor, broths and soups skimmed of the fats are often taken with relish. An egg beaten up with milk and liquor is very strengthening, and can be given with a spoon. The forcing of food down the animal's throat against its desire is not proper, and will not help the condition at all. It is my custom to advise the feeding of anything that the dog has an appetite for, but not in large quanties. One patient was very fond of smoked herring, the roe of which was the breakfast dish of the owner, and ate it while he would take nothing else. The appetite of the dog with distemper is very changeable, and should be humored. The eyes and nostrils are to be attended to daily by sponging and cleaning. A wash of borax—one drachm to the pint of lukewarm water—makes a good sponge wash for the eyes, and might be used to clean the nostrils also. The ancient use of tar in the kennel and on the patient is not to be deprecated, as the balsamic odor is beneficial to the irritated membranes, and, in my opinion, relieves the catarrhal condition of the mucous tracts. I advise the use of oil of tar to the nose, from the line of the eyes to the tip of the nose, believiug that the smell of the tar certainly is of virtue.

With all our efforts the case will often keep on the downward track, and cannot be turned, and will get away from us, so that at times there is not much satisfaction or honor to be obtained in our dog practice, yet the owner usually has a knowledge of the dangerous character of this disease, and if he has not it does not take long to impress him with the fact of it being extremely dangerous, so that, if perchance the canine should make a good recovery, we may make a good hit.

BALTIMORE, MD.

Little or no change has taken place in the tools of a horseshoer from those used in that trade three hundred years ago.

In a year the food eaten by a horse is estimated at nine times his weight, that of a cow nine times, that of an ox six times.

A recent case of diphtheria in one family was traced to a cat as the bearer of the same through its migrations from one house to the other.

Owls cannot move their eyes around, but to compensate for this they are able to turn their heads in almost a complete circle without a motion of their bodies.

The shark, it has been observed, manifests a distinct choice for people of certain races, and will eat an Asiatic in preference to a negro, and a European rather than either.

The eligible list for diplomas in the New York College of Veterinary Surgeons numbered fifty-three (53). Of these forty-two (42) came up for graduation, and thirty-one (31) were successful.

The West Chicago Street Railway Company owns in their horse called Jupiter one of the tallest and largest horses in this country—bay in color, bony and ungainly, nine years of age, of Kentucky parentage, weighing about 2200 pounds and stands twenty-one hands high.

Only three candidates presented themselves for examination on April 2d at the regular meeting of the State Board at Columbus, Ohio. Two were graduates, one of the Chicago Veterinary College and one of the Ontario Veterinary College, both passing; the third, a non-graduate, failed to attain the average required.

EDUCATIONAL.

Synopsis of Address of Dean McEachran to the Graduating Class of McGill University

"When you decided on selecting this as your profession, no doubt your ideas of it were very different from what you have found it to be, in so far as the work imposed on you as students was concerned. No doubt you hesitated as to whether you would enter a school where you had to study for three years or one where you could graduate in two. Your experience has taught you that three years are all too short to accomplish your work. I must confess that as students you have my sympathy in your efforts to overtake so much work in so short a time, more especially when so much of that work is of a minute technical nature, for which you are not all equally adapted by nature or education. I refer to this for the double purpose of congratulating you on your having accomplished a degree of competency sufficient to enable you to graduate and to impress on your minds the necessity for your continuing to follow up the studies as graduates which you began as students. Our science, like all others, is a progressive one; we live in an age of progress. As electricity has revolutionized mechanical and applied science, so have the revelations of bacteriology revolutionized that of medicine, and the addition of a bacteriologist and a practical chemist to the staff of a well-appointed hospital is as necessary as is the compass to the navigator. No longer need the practitioner of any branch of medical science grope in the dark, going on, as during all these centuries he has, in blind faith. The laboratory, the microscope, the culture-room, and the experimental animal will determine accurately the nature of the infective microbe. From this new branch of medical science has evolved other progressive steps. The microbe causation of disease necessitated the discovery of medicinal agents with which to combat these by the prevention or destruction of them, hence the advance in surgery. Has not the necessity for antiseptic measures revolutionized practical surgery? Most undoubtedly. With a full knowledge of antiseptics the surgeon of to-day can, with confidence, perform ope-

rations which the surgeon of thirty years ago would have shrunk from undertaking. A knowledge of bacteriology has caused the physiologist and the histologist to waken up. We have long understood that blood consisted of liquor sanguinis, or plasma, and red and white corpuscles. It is but recently, however, that we have learned that there are four varieties of white corpuscles, two of which are known to be the enemies of the destructive bacilli, and it is to the presence of these, the mono- and polynucleus leucocytes that Capt. Schnikoff attributes the power of resisting disease. Not only have these branches of medical science been wakened up, but our whole domestic economy has been improved. You will thus see the absolute necessity for your continuing your studies. You ought to subscribe for and carefully read the professional journals and scientific magazines. Add to your libraries new professional books as they are issued up to date, and record and contribute to the journals the results of your observations and investigations. Those of you who can afford it ought to spend a year, at least, at one or more of the great European schools such as those of Germany, Russia, Austria, and France, where the teachers are specialists paid by the government to devote their time and energies to the work, not as is the case in British, American, and Canadian schools, where the teachers are men who require to attend to busy practices to enable them to support their families, and who tax their energies and overwork themselves in their efforts to do but scant justice to their professional duties. At such establishments, too, you will find equipments and appliances such as private self-supporting schools in English-speaking countries cannot afford, and the extent of the clinics in such large establishments will enable you to see in a few months a very large extent of clinical practice. Do not misunderstand me by inferring that I consider such schools better to study at from the beginning; they are not. I believe that the ground-work is better taught at the English-speaking schools; but for post graduate work I would recommend you to go to the European government establishments. It is to be hoped, however, that the day may yet come when this faculty will rival the other faculties of McGill in equipment, and then such advice will be unnecessary. When you go out to practice keep well in touch with the profession, and keep well in touch with your teachers. The more the faculty and the graduates are united and communicate with

each other the stronger we will become, and the greater the influence your alma mater will have in bringing about those changes in matriculation, curriculum, and extension of time of study, which, I am happy to have learned, you yourselves consider to be necessary to enable undergraduates to satisfactorily accomplish the work which an advanced and advancing science demands. On behalf of your teachers and myself, and on behalf of the great university of which this faculty forms an integral part, I wish you Godspeed On their behalf I would beg of you to endeavor to realize the responsibility your graduation imposes upon you. Going forth in the world to carve your way, you do not do so as unknown, unrecognized, wandering, but you bear with you in your diplomas certificates of recognition and recommendation, guarantees to the whole world that you are honorable men, men worthy of trust, and men possessed of all the knowledge and attainments that you profess. If you would but endeavor to realize the responsibility your faculty and your examiners feel when they recommend you to receive the degree of this university you would see that we have a right to expect of you that by good conduct, unswerving fidelity to your God, your Queen and your alma mater, you will honor us by being an honor to yourselves and to your families. Bear in mind that you have a duty to perform to those poor dumb friends, to whose patient sufferings your professional duties will daily call you to minister. During your pupilage you have been taught to study comparative psychology, and have been led to think of your patients, not as men ordinarily think of them as senseless brute beasts, but as intelligent, sensitive, reasoning animals, but a little lower on the reasoning scale than ourselves, endowed with all the anatomical, physiological and psychological attributes which characterize our own bodies. Therefore avoid giving any unnecessary pain or discomfort to your patients during your efforts to cure their diseases, medically or surgically. Owing to the important changes that have been made in the curriculum of the medical college, more especially the extension of the session to nine months, this faculty is under the necessity of endeavoring to provide for special lectures and special demonstrations for its own students. Much inconvenience has been experienced in our efforts to take advantage of the medical classes for veterinary students, and especially has work of a practical nature in pharmacy and clinics been interfered with.

It is to be hoped that by some means or other the faculty will be enabled to carry out these improvements which have long been felt to be desirable, but circumstances now force them upon us as a necessity. I cannot close these remarks without referring with regret to a circumstance which, viewed in one light, may be a subject for congratulation. It must be a compliment to the university to have other great teaching bodies come to us for teachers of high standing, and if the New York Medical College succeeds in inducing Professor Mills to sever his connection with us, in the sense referred to, we must feel proud. I think, however, that in losing Prof. Mills we lose a scholarly man, a man of high moral standard, a man who has through his writings done much to spread the fame of McGill. His text-books on physiology and comparative physiology are in use in all the best English-speaking medical and veterinary colleges. Certainly this faculty will suffer the loss of a most competent, energetic and gifted colleague, and you, undergraduates a sincere friend and painstaking teacher. Let us hope that some steps will be taken to prevent McGill losing her Oslers and Mills. However, I am sure that whether he is taken from us or not the graduates and undergraduates of this faculty will ever hold his memory dear."

SYNOPSIS OF PRESIDENT'S ADDRESS OF CALIFORNIA STATE VETERINARY MEDICAL ASSOCIATION.

President C. B. Orvis, of the California State Veterinary Medical Association, in his recent address, after referring to the pleasure and gratification at his unanimous election, and paying a just tribute to Secretary Archibald, whose faithful services had done so much for the success and prosperity of their organizarion, spoke of the value of these annual and semi-annual gatherings and of the stimulus they proved to be to all those who made it a duty to attend regularly the meetings of the Association, and of the value specially, of that part of the programme which included practical demonstrations of operations and clinical reports of peculiar cases of importance and interest. He also referred to the strong position among the laity that the profession had gained during the past few years, and specially since the State organization had become so prominent a factor in the

work, and of importance in the relation of the profession to the agricultural and stock interests of the State. He also spoke of the generous recognition accorded the veterinary profession by their sister one, the medical branch, and the generous confidence expressed by the State Board of Health in their recognition of work performed by Veterinarians from time to time in conjunction with State work. He congratulated the California Veterinary College on its establishment as well as its adoption of a three years' curriculum. He suggested the wisdom of having an examining board not in connection with the college faculty for the examination of students at the completion of their course for the diploma of the school. He referred to the defeat of the bill establishing State and County Veterinarians with proper quarantine laws, and thought that it was only delayed for a short period of time, and referred to the fact that much information had been spread abroad by veterinarians in regard to certain infectious and contagious diseases, which was unwarranted, and not calculated to enlighten the people as to the dangers associated therewith. He thought that with the valuable diagnostic agent, "mallein," they would soon be able to entirely eradicate glanders from the State if clothed with proper authority.

REPORTS OF CASES.

BILATERAL PNEUMONIA—DEATH.

BY OTTO NOACK, READING, PA.

The subject was a gray horse suffering with pneumonia bilateralis. Received him for treatment after transportation. The horse hung his head and had a stupid appearance, mouth dry and hot, temperature 105.8° F., breathing with difficulty and very rapid. By auscultation of the lungs no sound to be heard in the middle parts. Pulse quick and feeble. The animal staggered to keep from falling. These symptoms showed that death was certain and close. Died the following morning.

Dissection. Animal in poor condition. In the abdominal cavity no abnormal contents could be found. The viscera were

in normal position and state. The tissues of the stomach were swollen in the pyloric portion, and showed red spots. The spleen was somewhat enlarged and soft in consistence. Pulp soft and hard, a brownish red color. The liver was larger than normal and rims curled, and the organ appeared hardened, deep red and dull in appearance. Centre of the acini were brownish red, the peripheral part a grayish color. In different parts the commencing and ending of the acini could not be distinguished. The kidneys were enlarged, brittle to the touch, dry and dull looking. The glomeruli could be easily recognized in the cortical substances as very small red points. No abnormal substance could be found in the serosa of the thoracic cavity. The heart muscle was dry and brittle, grayish red and dull, a condition also recognized in the gluteal muscles. Both lungs on the lower parts of the middle third were non-elastic and tough. By pressing on the cut surface a grayish white fluid escaped. The other parts of both lungs were normal on the surface and on section. In the lower part of the trachea traces of the above-mentioned fluid could be seen.

Anatomical Diagnosis. Pneumonia catarrhalis bilateralis; œdema pulmonum myocarditis et myositis parenchymatosa; gastritis hæmorrhagica; intumescentia lienis; hepatitis et nephritis parenchymatosa.

FLATULENT COLIC—POST-MORTEM.

BY OTTO NOACK, READING, PA.

Colica. Bay horse, showing the symptoms of severe flatulent colic. Died two hours afterward. Dissection on next morning. Animal was in poor condition. Upon opening the cavity of abdomen the pointed end of the cæcum was found in the left side of flank. The left part of the large colon was twisted around the longitudinal axis and around the diametrical axis. The mesentery of the small intestines was twisted at the commencement. The cæcum was of a bluish red color. Upon opening the intestines all the tissue of the small ones were of a brownish red color, the whole length was covered with diphtheritic coating, the color being a grayish green. The tissues of cæcum and first portion of large colon were swollen, and many hemorrhages were seen there. Upon cutting the stomach open the pylorus was swollen, grayish

green and anæmic, the structure around the different glands lobuli appeared to be drawn in.

The liver looked glossy and smooth, grayish red in color, enlarged, rims curled. The parenchyma on the cut surface appeared grayish yellow and abnormally soft. The kidneys could be easily lifted out of capsules, were smooth and glossy, of tough consistence. Cutting diametrically the renal substance, it appeared to be bulged out, and was of a yellowish color. The straight urinary tubes were distended, and upon pressure a slimy grayish green fluid escaped. The spleen enlarged, capsules distended, steel blue in color and the pulp soft and flabby. The meshwork beneath it could not be distinguished plainly.

Heart muscle gray and soft. On the diametral cut surface of the lungs there was a froth resembling soapsuds.

The ligamenta aryepiglottica of the larynx were enlarged and thickened.

Anatomical Diagnosis. Implication of cæcum, longitudinal twisting of the left part of the large colon around the transverse colon, twisting of mensentery of small intestines, jejunitis hæmorrhagica et diphtherica, cholitis et typhlitis hæmorrhagica, gastritis glandularis, hepatitis parenchymatosa, nephritis catarrhalis, intumescentia lienis, myocarditis parenchymatosa, carditis, œdema pulmonum.

IMMOBILITY FOLLOWING INFLUENZA. RECOVERY.

BY W. HORACE HOSKINS, PHILADELPHIA.

Subject, a bay gelding, weighing 1450 pounds, five years of age; recently received from the West. Was received by writer for treatment on March 28, though had been sick for several days before.

Diagnosis. Acute catarrhal influenza; temperature, 107° F.; great weakness; marked anorexia; no pulmonary symptoms beyond increased bronchial breathing; respiration and pulse only slightly increased. Was placed on a neutral fever mixture, with tincture of cinchona every four hours, and half-ounce doses of nitrate of potash and sulphate of magnesia in the drinking water, morning and evening. Temperature came down slowly from $\frac{3}{5}$ to 1 degree a day, until a temperature of 103° was reached,

where it remained almost stationary for three days. Would eat only corn on the cob and but little hay; some six small ears were allowed daily. Was visited daily until April 6th, when the temperature had reached 101°, with an increased disposition to eat and assuming the recumbent position regularly at night. Was visited on the 10th and found still improving. Was ordered a sun-bath in the yard for a half hour at midday, and under this change seemed better for two days, but on the third day, after taking him to the yard with some difficulty, noticed a lack of power in the front limbs, and when ready to return him to his box-stall great difficulty ensued, occupying ten minutes to remove him less than sixty feet. On visiting him the following day found great mental depression, head held low, nose almost touching the ground, indisposed to move from one position; when compelled to move staggered and almost pitched forward; fetlocks of front limbs thrown forward and musculo-nervous tremblings of the muscles of shoulder, arm and breast; pulse full and hard; very little fecal matter eliminated the preceding twenty-four hours, but slight peristalsis on auscultation; temperature 103°. Would commence to eat when head was placed in feed-box, but would seemingly forget and cease to masticate or make any disposition of food in the mouth for two or three minutes at a time. The following day all the symptoms were more pronounced, though laxative treatment, with stimulants to the nervous system were given for twenty-four hours. On the 15th the symptoms became more alarming, and I had the animal removed to my sanitarium with ambulance. On the morning of the 16th I gave him an ear of corn, and after placing it between his nipper teeth he rested the end of the cob on the floor and apparently found comfort in thus sustaining the weight of his head for a period of three minutes. Co-ordination of the front limbs almost lost. Placed him under one-ounce doses of artificial Carlsbad salts, with dram doses of powdered rhubarb every four hours. Improvement noticeable in twenty-four hours. In four days walked fairly well, pulse became softer, appetite returned, head assumed normal position, increased action of bowels established, and temperature fell to 101°. On the 21st was exercised slightly and discharged from the sanitarium on the 25th, when he was able to trot to the halter without any visible signs of loss of co-ordination, and all the functions of the body being performed in a normal manner.

LEGISLATION.

New York.

The recent effort in the New York State to again extend the time of registration of non-graduates, which was negatived in the Committee, differed in one very material point from a similar bill vetoed at the preceding session of the Legislature by Governor Flower, in that it purposed to admit to register only those who had practised eight years, while the one vetoed required a limit of but three years.

The bill establishing a higher standard of examinations, referred to in our February number has successfully passed the Assembly, and is pending action in the Senate.

The bill exempting veterinarians from jury duty in New York State has passed the Senate by a vote of 32 to none, and the Assembly by 103 to none, and now awaits the Governor's action. Dr. Arthur O'Shea, member of Committee on Legislation, New York State Veterinary Medical Association, and member of Judiciary Committee New York County Veterinary Medical Association, is out in a letter specially requesting the veterinarians of New York State to write the Governor urging his approval of the act. Every veterinarian of New York State should respond to his timely appeal.

A bill has passed the New York Legislature looking to the establishment of a zoölogical garden in New York City. It is to be sincerely desired that it will meet with the Governor's and the Mayor's approval for its great value as an educational factor for the school children of the greater New York. Every veterinarian should lend his aid and encouragement to this proposition.

The bill for the extension of time for registration in New York State has been killed. The bill for the relief of veterinarians from jury duty promises to become a law, though it will need the continued support and watchfulness of the profession throughout the State until it becomes a law.

The Master Horseshoers' bill in the New York State Legislature has not the undivided support of the veterinary profession, and is being opposed strongly by journeyman shoers.

Pennsylvania.

Efforts are being made in the present session of the State Legislature of Pennsylvania to extend the provisions of the Milk Act of 1885, now applying to cities of the second and third class, to cities of the first class. This act makes the purveyor of milk liable for the acts of his employés in any violation of the provisions of the act. It demands a standard of 12.5 per cent. milk solids, not less than 3 per cent. of which shall be fat, with a specific gravity of 1029 to 1033, at a temperature of 60° Fahrenheit.

The bill establishing a State Board of Veterinary Medical Examiners in Pennsylvania passed second reading on special order on April 8th, and on the 9th passed third reading by the overwhelming vote of 147 to 11, in the House, where it was ably managed and well championed by Representative Woodring, of Northampton County, to whom the veterinary profession of Pennsylvania owe a debt of gratitude. It is now in the Senate.

We inadvertently published in the April number the statement that the Live Stock Sanitary Board bill had passed the Senate. It has only reached first reading in the Senate, having passed the House by a large majority. All veterinarians and their friends want to give this bill their close attention, as the session of the Legislature is fast drawing to a close.

Kansas.

The loss of a State Veterinarian as an official of the State of Kansas has resulted solely from unsatisfactory results obtained through the employment of members of this calling, during the past two or three years. In fact, so flagrant became the enormous expense piled up by one of the recent occupants of this position that it became a State issue of great force in the last campaign throughout this State. The position has become one thoroughly political in character, and whenever this condition ensues it is bound to result in disaster to the profession. Not until all these positions are made upon the basis of merit of the applicant will they become secure and the States creating and

appointing them reap the reward they are entitled to through the valuable services that can and will be rendered to any State in the just recognition of the profession.

The loss of the State Veterinarian in this State was filled by the maintenance of the State Sanitary Live Stock Commission, consisting of two Republicans and one Democrat, and at present most of the investigations are conducted by one or more of this Board. They only employ a veterinarian when they deem it necessary.

Massachusetts.

The Veterinary Registration bill now pending before the Legislature of Massachusetts is reported in good position, and will no doubt become a law of the State. It will be a good stepping-stone toward better regulations.

The bill known as the Tuberculosis bill in the Legislature of Massachusetts has been altered in the Senate by the adoption of Senator Bill's amendment, which provides for the use of tuberculin only where the owner requests it, and where the disease is known to exist after a physical examination.

We feel sure that the wide difference of opinion existing among the veterinary profession of Massachusetts has not arisen so much from a real disagreement of views as to the value of certain methods of diagnosis of tuberculosis as to the fact that the time and people were not opportune for pursuing the subject on such a broad and thorough plan.

The bill which passed the Senate of Massachusetts recently reduced the proposed appropriation to the State Tuberculosis Commission from $212,000 to $100,000, and proposes to allow full compensation where animals are destroyed. It is now in the hands of the House.

Missouri.

Synopsis of House Bill No. 667. *Passed House, March* 5, 1895.

Seetion 1 grants to State Board of Health the power to demand, through the Secretary of the State Board of Agriculture, the services of the State Veterinarian for the inspection of such infectious and contagious diseases as are transmissible to the human family, and in the examination of meats, milk, and foods.

Sect. 2 provides for any ten lawful freeholders through any officer of the courts calling for the presence of the State Veterinarian to examine into any outbreak of contagious or infectious diseases. Under Section 2 the necessary power to quarantine, disinfection of premises, erection of barriers of defense, is accorded the veterinarian. The power to order the destruction of diseased animals.

Sect. 3 provides for compensation when animals are destroyed through appraisers. Compensation for animals has been decreased as follows: Acute glanders from twenty-five dollars, not to exceed five dollars; subacute, from fifty to not exceed twenty-five, and chronic, from fifty to not exceed thirty dollars.

Sect. 4 provides for a cut in the State Veterinary Surgeon's salary from $2500 to $1800 yearly, with necesssry travelling and incidental expenses for each day employed.

We learn through State Veterinarian Turner that the bill making it a punishable offense for docking horses' tails, except by a qualified veterinarian, for remedying some physical defect, has been lost.

The Assembly bill revising the veterinary law of the State in which it establishes co-operation between the State Veterinary Sanitary Board and the State Board of Health, by which they will be enabled to do experimental work in regard to tuberculosis, has passed that body. The State Veterinarian's salary was cut down from $2500 to $1800 per year. This was accomplished by tacking on this as an amendment to the other bill, so that to defeat this change in salary would have carried with it the loss of the other important features of the bill.

A bill was introduced and referred to one of the committees to regulate the practice of veterinary science in the State. It is said to be very crude and lacked largely the indorsement of the profession of the State, and did not emerge from the committee.

Arizona.

The salary of the State Veterinarian of Arizona has been cut down from $2000 to $1800.

COMMENCEMENT EXERCISES.

CHICAGO VETERINARY COLLEGE.

On Thursday, March 21st, a banquet was given at the Sherman House by the Faculty of the Chicago Veterinary College to the graduating class, which proved a most enjoyable affair. Prof. Joseph Hughes acted as presiding officer on the occasion, and speeches were made showing the good-will existing between class and faculty. To the toast, "The Class of '95," Dr. George A. Lytle responded. "The Young Veterinarian in Practice" was done ample justice to by Dr. A. E. Flowers. "The College Association" was responded to by Drs. J. M. Lambert and A. McBride; "The Faculty," by Prof. A. H. Baker; and "Success in Life," by Major W. A. McCluer. Speeches were also made by Profs. George S. Baker, J. F. Ryan, E. L. Quitman, and C. E. Sayre. Letters were received from Profs. S. J. J. Harger, W. L. Zuill, E. A. A. Grange, D. A. Salmon, A. Liautard, T. D. Hinebauch, W. Horace Hoskins, Mayor Hopkins, Health Commissioner Reynolds, and John G. Shortall, President of the Illinois Humane Society, regretting their inability to attend.

The twelfth annual commencement exercises of the Chicago Veterinary College were held Friday, March 22d, and forty-two graduates received the diploma of the institution. The exercises were presided over by Prof. Joseph Hughes, who presented the Secretary's report for the past year. He stated that of the forty-two students who had just graduated, eighteen graduated with honors, of which the following is the list: G. F. McGuire, G. H. Chandler, W. A. Savage, R. Kammerer, A. E. Flowers, G. A. Lytle, A. McBride, J. Lambert, E. N. Netfleton, W. C. Baldwin, H. E. Talbot, B. H. Wood, H. O. Sanford, A. J. Payne, S. K. Hazlett, V. P. Smith, W. E. Bradley, E. G. Piper.

Dr. G. F. McGuire deserves special mention as having the highest general average. Dr. W. A. Savage received the prizes in Anatomy and Chemistry, and Dr. G. A. Lytle the prize in Theory and Practice. Having concluded his report the degree, "Doctor of Comparative Medicine" (M.D.C.), was conferred by the chairman on the members of the graduating class. Following the conferring of the degrees came the distribution of

diplomas, and afterward the valedictory by Dr. C. I. Fleming. On the conclusion of the valedictory address Dr. J. J. McGrath, the class prophet, read an effusion which caused considerable merriment among his fellow-graduates. The doctorate address on behalf of the faculty, by Dr. A. H. Baker, completed the proceeding.

The following is a list of the graduates and their locations: H. G. Bailey, Hinsdale, Ill.; W. C. Baldwin, Roscoe, Ill.; F. C. Binnewies, Walworth, Wis.; R. S. Blackburn, Quincy, Ill.; W. E. Bradley, Lee, Mass.; W. H. Broderick, Chicago, Ill.; W. H. Button, Los Angeles, Cal.; C. H. Chandler, Marseilles, Ohio; B. L. Clarke, Monticello, Wis.; F. A. Crandall, Jr., Buffalo, N. Y.; A. E. Duckworth, Osceola, Ia.; C. I. Fleming, Terre Haute, Ind.; A. E. Flowers, Lyndonville, N. Y.; J. W. Golden, Jr., Sleepy Eye, Minn.; F. E. Greene, Lake Geneva, Wis.; A. H. Hartwig, Watertown, Wis.; S. K. Hazlet, Elgin, Ia.; I. W. Horton, Providence, R. I.; G. D. Judson, Polo, Ill.; R. A. Kammerer, St. Louis, Mo.; C. P. Kime, Montpelier, Ohio; P. O. Koto, Forest City, Ia.; F. S. Lambert, Du Page, Ill.; J. M. Lambert, St. Peter, Minn.; H. Leutholt, Taylor, Pa.; G. A. Lytle, Palatine, Ill.; A. McBride, Chicago, Ill.; J. J. McGrath, Chicago, Ill.; G. F. McGuire, Waterbury, Conn.; E. N. Nettleton, Chicago, Ill.; A. J. Payne, Wabash, Ind.; J. T. Pfeifer, Franklin, Wis.; E. G. Piper, Palmyra, Wis.; J. R. Sanders, New Sharon, Ia.; H. O. Sanford, Tyndall, S. D.; W. A. Savage, Lockport, Ill.; S. Sieker, Herman, Wis.; V. P. Smith, Jamestown, Ohio; H. W. Stern, Beaumont, Tex.; H. E. Talbot, Des Moines, Ia.; C. F. Van Blankensteyn, Brooklyn, N. Y.; B. H. Wood, Streator, Ill.

McGILL UNIVERSITY.

The commencement exercises of the veterinary department of the McGill University were held on Friday, March 29th, in the William Molson Hall, and were presided over by Chancellor Sir Donald Smith. Seated with him on the platform were Messrs. J. H. R. Molson, W. C. McDonald, S. Finley, C. J. Fleet, Dr. Alex. Johnson, vice-principal; Sir William Dawson, Dr. D. McEachran, dean of the faculty; Dr. Girwood, Dr. Charles McEachran, Prof. Adami, Prof. Penhallow, Prof. Bovey, Rev. D. Clark Murray, Dr. W. S. Morrow, Mr. J. W. Braken-

ridge, acting secretary; Dr. Gadsden, Philadelphia; Dr. John M. Parker, Haverhill, Mass., and Dr. Miller, Burlington, Vt., the examining committee of the graduating class.

After prayer by Rev. Dr. Clark Murray, Dean McEachran read the report of the college work, after which the following prizes and scholarships were awarded the successful competitors: Veterinary medicine and surgery—W. K. Inglis. Anatomy—Harri Dell. Cattle pathology—C. H. Zink. Cynology—C. H. Zink. Botany—F. A. Brennan. Chemistry—C. H. Higgins. Physiology—Harri Dell. Pharmacology and therapeutics—C. H. Higgins. Best general examination in all subjects (silver medal)—John Campbell Hargrave.

Scholarships: For the highest aggregate obtained in first year subjects ($50)—F. A. Brennan. For the highest aggregate obtained in second year subjects ($50)—H. Dell.

The presentation of diplomas was then proceeded with, the oath being administered by Dr. Alex. Johnson, who also performed the "capping," the acting secretary handing the diplomas to the following-named graduates: W. K. Inglis, Granby, Quebec; J. C. Hargrave, Medicine Hat; W. V. Jones, Wolfville, N. S.; C. H. Zink, Jr., Philadelphia; H. D. Clark, Plainfield, Mass.; L. S. Cleaves, Boston, Mass.; E. H. Lehnert, Clinton, Mass.; A. Cowan, Montreal; C. A. Boutelle, Danville, Quebec; J. C. Cutting, Boston, Mass.; W. A. Morrin, Belle Riviere, Quebec.

The valedictory address was delivered by C. H. Zink, of Philadelphia, who spoke warm words on behalf of his alma mater. The address of Dean McEachran, as usual, was replete with wholesome advice, a synopsis of which appears in this number of the JOURNAL.

The graduates were afterward addressed by Sir Donald Smith, who urged them to honorable work on behalf of the college and in the interests of the great agricultural industry of Canada.

Sir William Dawson in his remarks showed the close relationship of veterinary science and agriculture, and said that it was the duty of everyone connected with the veterinary profession to aid in improving live stock as well as caring for them in disease, as the improvement of live stock was one of great importance to the community. He considered that it was the duty of every educated man in the country to make himself an expert in scientific agriculture, and thus to promote and extend its welfare. Further, that good stock could not be kept unless

there was good food to feed them on, and their proper care made a thorough study, closing with the remark that it was not by speculating in the stock market that the country was to be built up; it was by improving the animals.

Dr. Alex. Johnson expressed the hope and wish that the term required for study would soon be extended, and that veterinary science would still take higher rank.

The proceedings closed with the benediction pronounced by Rev. Dr. Clark Murray.

NATIONAL VETERINARY COLLEGE.

The commencement exercises of the National Veterinary College were held on Saturday evening, April 6th. The address to the students was delivered by Edwin P. Willits. Dr. D. E. Salmon, President of the college, delivered the diplomas to the graduates, and conferred upon Dr. Charles F. Dawson and Dr. George Jobson, two of the faculty, the degree of D.V.S. Gold medal prizes for the best examination were awarded George E. Fetter, of New Jersey, while honorable mention was made of M. Wooden, of Maryland; William Fink, of Maryland, and Richard T. Mumma, of Pennsylvania. The junior anatomy prize was awarded J. W. Petty, of North Carolina. The degree of D.V.S. was conferred upon the following graduates: C. H. Blemer, of Kentucky; F. S. Charter, of Connecticut; J. M. Courbright, of Pennsylvania; A. L. Cundall, of Connecticut; T. H. F. Diederich, of Indiana; N. K. Fegley, of Pennsylvania; G. E. Fetter, of New Jersey; William P. Fink, of Maryland; C. F. Hadfield, of Rhode Island; R. T. Mumma, of Pennsylvania; C. J. Siegmund, of Maryland; S. J. Swift, of Pennsylvania; F. W. E. White, of Virginia; M. D. Williams, of New York, and M. Wooden, of Maryland.

U. S. COLLEGE OF VETERINARY SURGEONS.

The first annual commencement exercises of the United States College of Veterinary Surgeons was held in the college building, 222 C Street, N. W., Washington, D. C., on April 18th. The degree of the college was conferred upon Jacob K. Shaub, of Lancaster, Pa., and Mortimer R. Weiner, Buffalo, N. Y. The school had eleven matriculants at its opening in Octo-

ber, 1894. The graduating class was addressed by Dr. C. Barnwell Robinson, in which he gave strict injunctions as to the necessity of every graduate upholding the dignity of the profession and the integrity of the institution from which they were emerging.

The valedictory address was delivered by Prof. D. S. Lamb, who in well-chosen words and kindly advice bade the students Godspeed in their field of work.

The announcement was made that hereafter the school would adopt a two-years' course, providing the students who presented themselves for its degree are found thoroughly competent by the Board of Examiners who conduct the final examination.

A free scholarship was announced as being open to a student of the high school of the District of Columbia and to each agricultural college throughout the States.

The recent graduating class of the College of Pharmacy of Philadelphia found five young ladies among the list for the honor of her degree. Among the theses we note one entitled "Tasteless Fluid Extract of Cascara Sagrada," a remedy much used in canine practice, and which from its present bitter taste becomes very objectionable in administering, and every effort is made by these animals to discharge it. We hope this may become an article of commerce among drug dealers if it still retains its laxative properties.

Veterinarians can hardly expect to avoid just criticism for practising the methods of quackery under the thin guise of a high sounding titled medicine company. Every association should be jealous of the honorable and professional conduct of its members, and all members should be accorded like privileges.

Portland, Oregon, has added to her industries by establishing a horse-meat factory, where horseflesh is prepared for foreign markets. We firmly believe that these movements will ultimately sccure a place for horseflesh among our own people.

"The Humane and Economic Care of the Horse" was the topic presented in a recent address to the Humane Society of Kansas City, by Dr. J. H. Wattles, of the Kansas City Veterinary College.

Prof. R. S. Huidekoper has been selected as Veterinarian to the National Cat Show in New York in May.

EDITORIAL.

THE June number of the JOURNAL will contain an exhaustive review of all new publications of interest to the veterinarian and student of comparative medicine.

STATE BOARDS OF VETERINARY MEDICAL EXAMINERS.—The actions of veterinarians in Ohio refusing to conform to the requirements of the State Board of Veterinary Medical Examiners need surprise none who are conversant with the low standards existing at some of the veterinary colleges of North America; nor need it cause any alarm to these Boards or the profession at large. These graduates, when once registered and in practice, will prove to be the strongest advocates of this well-devised safeguard for the people of any State. They will fully appreciate the fact that diplomas—more properly speaking, certificates of study—have relative degrees of value that vary exceedingly, and, like one dozen pieces of silk, they are all silk or all diplomas, but each of a different quality and representing different types of material and skill, different requirements of study, different masters skilled in the art of instruction. None know these material facts better than the schools themselves, and those who aim and strive to uphold and create a higher standard of educational requirements will be found supporting and sustaining these laws, destined to win for the profession in every State where they exist that better recognition and respect without which no vocation can command its rightful place among the people. Let the good work go on; let the lines be drawn; let every member jealous of the good name of his profession watch closely every movement in this direction.

ASSOCIATION VETERINARY FACULTIES NORTH AMERICA.—Perhaps it is not too early to suggest that one of the future questions to be confronted by this all-important veterinary body shall be as to its position relative to the State statutes now being engrafted upon the laws of various States creating Boards of Veterinary Medical Examiners that shall vouchsafe to their people, those who are well and sufficiently educated, to return to their employers a just recompense and return when employed

and when intrusted with valuable property whose existence is endangered by disease and other property imperiled by its presence.

Groundless Reports of Contagious Pleuro-pneumonia.—The unfortunate report that reached the public press and was cabled abroad of the suspected outbreak of "contagious pleuro-pneumonia" in Kansas should be a very forcible lesson to the veterinarians of our country. This unfortunate error is one that might be repeated at any time, and should impress very forcibly upon the minds of the veterinarians the great responsibility and trust that rests upon their shoulders, and is conveyed by invested gigantic monetary interests to the whole country, and should be a strong reminder that in all their inspections the greatest care and caution should always be exercised. While this applies in general, it specially applies in regard to those contagious and infectious diseases that have found lodgment on our shores from time to time by importation from other countries. At this time it was a peculiar misfortune that the slightest suspicion of the existence of such a disease should be announced when other countries had placed embargoes against our cattle on the grounds of the existence of "contagious pleuro-pneumonia" among our live stock, and the most thorough inspection should always precede judgment upon such questions, in order that no mistakes may be made.

We publish in connection with this reported outbreak of "contagious pleuro-pneumonia" a statement from Dr. N. S. Mayo, whose name was used in connection with the announcement of the existence of this disease through Associated Press news; and, likewise, a report of those who participated in the subsequent investigation that demonstrated beyond any question the non-existence of this disease. In fact, it can be said with absolute surety that this disease has never existed west of the Mississippi river, and has not for nearly three years been known to exist, either in the chronic or acute form, in any section of this country.

Under date of March 19 the report that South Dakota had quarantined against Texas on the grounds of "contagious pleuro-pneumonia" seemed to have been based on absolutely wrong deductions by the Governor of that State. Contagious pleuro-pneumonia has never existed in that section of our country at

any time, there never having been a single recorded case in that territory. Such movements as this are only destined to embarrass the National Government at Washington in endeavoring to have lifted the embargoes made against us in foreign countries on the grounds of the existence of this disease in our territory. It is only necessary to repeat the fact that not a single case of chronic or acute "contagious pleuro-pneumonia" has been known in the United States for the past three years, and the most exhaustive examination has been made to determine this point.

We publish in another portion of the JOURNAL a statement of the reported outbreak in Kansas, which also proves to be another grievous error.

VETERINARY COLUMNS OF THE SECULAR JOURNALS.—There comes a time when the "worm will turn" and when the American citizen feels that there is a limit to his endurance. The morning papers of April 27th, which inform us that England has landed soldiers on the soil of a sister republic, to control the transit of the Atlantic to the Pacific, as she does that of the Mediterranean to the Indian Ocean, without protest from the Chief Executive of the United States, irritates one to be critical for the remainder of the day.

THE following article from the veterinary column of the *Turf, Field and Farm*, April 26, 1895, is sufficient to disgust the intelligent veterinarians of the country, who, while making their living by hard work, spend much of their time in trying to improve the status of the profession :

"UNUSUAL PHENOMENA.—I send by to-day's express a stone taken from Stella by Vauxhall. My son, who witnessed the post-mortem, says the stone was found in the immediate region of the lungs and heart, and rather between the two. My groom, who opened the mare, says he examined for the liver and could find none. Can it be that the liver had become petrified? The mare was apparently in good health and splendid condition for breeding. She ate all of her oats the night before and about half of her hay. On the next morning the groom opened her stable door about light, and she nickered to him as usual, but when he went to feed her he found she would not eat. She died about 10 A. M. R. J. H.

"*Answer.*—The character of this specimen presents somewhat the nature of a calcareous deposit, often found in the abdominal cavity in the form of hard, rounded bodies described as *calculi*, and composed of carbonates, phosphates, etc., deposited in concentric layers around some hard and indigestible substance that finds its way in the stomach and bowels.

"Finding this, however, in the pleural cavity, where such substances are

seldom seen, in connection with the fact of there being no liver, makes this both a complicated and interesting case. The form of the specimen will readily admit of the theory that this is a metamorphosis of that organ into its present form. But we have to bear in mind that the liver has no business in the place where this seems to have been found. Although it is possible, it may, in its remarkably rough state, have so irritated the dividing wall as to cause a breakdown of that tissue, which would admit of its finding a location where it seems to have been found. Another remarkable feature of the case stares us in the face, that the mare must have lived a long time, certainly years, and apparently done well without a liver, a circumstance that even scientists will not admit can exist, as this remarkable change could not be brought about except through the medium of long time. We arrive at this conclusion from the fact there is no trace of any cespituous tissue about this foreign body, and absorption, always a slow process, would undoubtedly be the only means through which this would be accomplished."

If R. Y. H. wants to know about Stella why does he not spend a dollar or two, equal to what he puts in the church plate on Sundays, and employ a competent veterinarian to make an autopsy? What do his "son" and "groom" know of the anatomy of a horse, and what information of value does he expect to obtain from the veterinary editor of the *Turf, Field and Farm*, who finds from their description a mass in the "pleural cavity," and who accepts their statements as a fact that the horse in question had no liver? The veterinary expert(?) qualifies by "bearing in mind that the liver has no business in the place where it seems to have been found," "although it is possible," etc. [The liver to have been metamorphosed, to disappear from the right side of the abdominal cavity, pass through the diaphragm after severing its vascular attachments, pass obliquely to the left, through the mediastinum and be found "rather between" the lungs and heart.] Will the veterinarian(?) of the *Turf, Field and Farm* give us any authority for accepting that any mammal ever "lived a long time . . . without a liver," or that such an animal ever existed? It is rot. Let secular journals keep to the valuable matter which they should and do furnish, and which is of interest and value to their readers, and when their readers want to know about religion let them go to church and pay for their pew, and when they want to know about diseases of an animal let them go to a reputable veterinarian and pay him his fee.

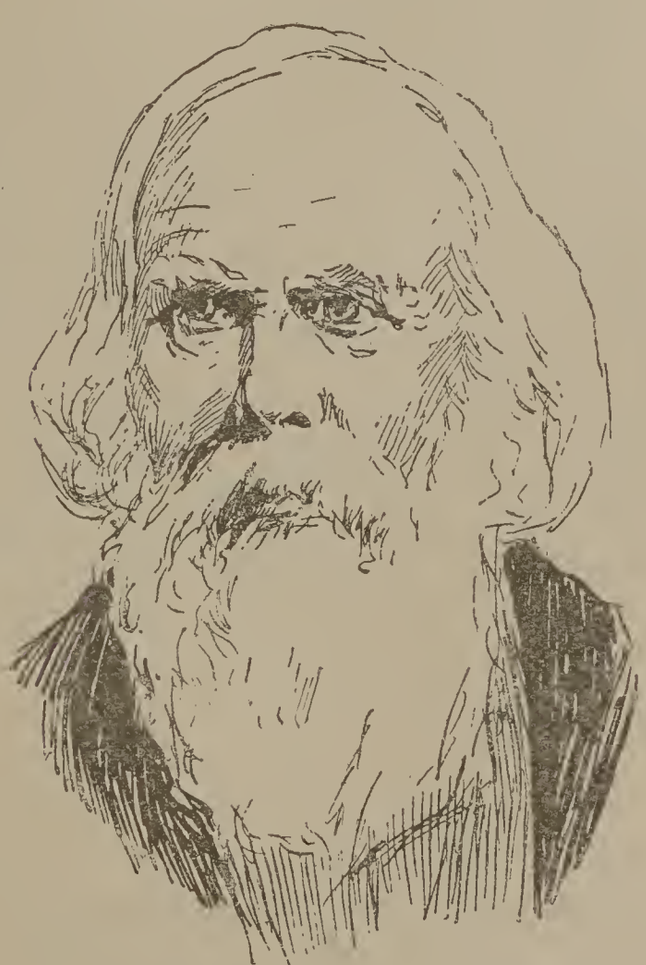
The National Cat Show to be held in New York City from May 8th to 11th inclusive, will prove an interesting and attrac-

tive one to all lovers of the feline species. The long experience in other animal shows of the managers will insure thorough care and fairness. Some fifty-four prizes, in as many varieties and classes, will be offered for competition.

We learn with much regret that the United States College of Veterinary Surgeons will announce a change from a three-years to a two-years' course, commencing with the session of 1895–96. This is a step backward, and we are sure will prove a serious blow to this school, which stepped out on so firm and determined a basis.

OBITUARY.

JOSEPH GAMGEE.



Joseph Gamgee died at Edinburgh, Scotland, on February 9, 1895. Mr. Gamgee had been for over sixty years one of the well-known members of the veterinary profession, and for half

a century he had been a celebrity. He was born in Essex, England, on the 10th of February, 1801. He lived an energetic life, and only failed in health recently, so that when his son died he was not allowed to hear of it. At the age of twenty Gamgee obtained a position under the Prince of Petrulla, in the south of Italy, to take charge of hunters and hounds. On his way he had his horses shod in Paris, and made comment on the superior farriery to be found in France. Gamgee's employment required frequent trips between Naples and Prince Petrulla's country estates, and brought him in contact with the brigands who invested the country, and he is credited with great bravery in several fights and escapes from them and from highway robbers.

Two years latter Gamgee returned to England and entered the Veterinary College at London. He afterward took a course at Alfort. In 1825 he returned to Naples, and shortly afterward removed to Florence, where he was joined by his wife and children from England. In Florence he gained a high reputation, having an extensive practice in the stables of the rich English who then travelled in their own coaches. In 1844 Gamgee was sent to England by the Duke of Savoy, in company with the Marquis of Pamparra, to purchase horses. He made several similar trips. In 1855 he returned to England, and successively taught in the New Veterinary College, Edinburgh, and in the Albert Veterinary College, London. Gamgee was a careful observer, a profound thinker, and an educated writer. He wrote extensively for the journals, and was an authority on the care and breeding of horses. His *Breeding of Hunters and Roadsters* won him the medal of the Royal Agricultural Society. His *Lameness and Horseshoeing* has been an authority. Gamgee's personality made him respected by all and loved by those who knew him well.

REVIEW.

ANOTHER valuable addition will be made shortly to veterinary literature in the announced forthcoming work entitled *A Book on Cats*, by Prof. R. S. Huidekoper. It will be full of general information of much worth to the busy practitioner, including the classification, varieties, care, diseases, and treatment, with profuse illustrations.

SELECTIONS.

THE United States Consul at Brunswick, Germany, in a recent report to our Government, has this to say on the subject of horseflesh as an article of diet in Germany: That it is the chief meat of a large percentage of the poorer classes in that country; that it is sold in all the large cities, where numerous shops exist for its sale, and the quantity consumed in these districts equals that of beef or mutton; that the present high price prevailing of forty to fifty dollars per head opens the market for the great surplus still glutting the American horse market, and for which there promises no great relief for a year or two. He advises American ranch owners, stockmen, and meat packers to give the matter immediate consideration, specially so since the exclusion of American cattle from German ports. Horseflesh is offered for sale in smoked and salted forms of preparation. It could be readily prepared on the other side if shipped alive on the hoof.

This is a matter that should command thorough consideration by our American raisers of horses, as the present extremely low prices are impoverishing the producers in the West, and have bankrupted many prosperous farmers. No horse can be raised and sold at four to five years of age at fifty dollars per head, as the food, care, and losses entailed in horse-breeding farms make it impossible. To-day our Eastern markets are glutted with a class of horses which, after the added expense of transportation, etc., range from fifty to eighty dollars in price. Now many of these horses are at two years of age but little less in size and weight than at four, at which age it is the earliest that they can be offered for sale for use. Now when used for beef there would be a saving of two years' cost of keep, lessened losses in all directions, and at forty dollars per head would pay a fair return for raising. It will be some time before our American people will overcome that present repugnance against horseflesh as an article of food, though it will every day grow to be a stronger factor in the regulation and control of the beef market, and the present opportunity would be a good one to grasp and a great outlet for the over-production now existing in the horse-raising centres of our land.

Prof. C. B. Cochran, Inspector of Food of the State Board of Agriculture, recently addressed the Milk Symposium under the

auspices of the Pennsylvania Horticultural Society, in which he said: "No mammal is strictly herbivorous. Even if the adult animal derives its sole nourishment from plants, the younger feeds on milk, a secretion furnished by nature as food for the young. The typical food of the adult cow is grass, but of the calf is milk. The general fact that the food of the adult differs from that of the young holds true in all other mammals, including man. A very plausible reason for this seems to suggest itself when we study the composition of the animal body and the nourishing constituents of our foods. The food of animals can be divided into four classes, and in one or the other of these four classes every substance forming a food for man or the lower animals can be classed. These four classes are the mineral constituents, the hydrocarbons, the carbohydrates and the proteids. The carbohydrates belong almost exclusively to the plant kingdom. They can scarcely be said to enter at all into the formation of the animal organism, but, on the other hand, they are the sole building material of plants. Cellulose, starch and sugar are the important members of this group.

"The proteids, on the other hand, are the building materials of animals. The chemical composition of the tissues of plants and animals we thus see are different. The proteids and the carbohydrates differ decidedly in all their physical and chemical properties. Plants make and use proteids. The life of the plant depends upon its ability to make proteids, but it does not use this valuable material to construct its body. Animals use carbohydrates. Three-fifths to four-fifths of the animal's food are carbohydrates. These substances seem to be, in many cases at least, essential to the life of the animal. Yet the animal organism is not composed of carbohydrates. Nor can it build up its organs out of these materials. To build up its proteid tissues it must have proteids. The animal is unable to make proteids for itself. It must get them from plants. But plant materials are not rich in proteids.

"Milk, on the other hand, is rich in this class of food materials, and furnishes to the newborn mammal, in an easily digestible and assimilable condition, the proteid material to meet the demand that now exists for rapid tissue formation. For this reason, and also because the young mammal does not possess the power of readily digesting the vegetable carbohydrates, nature endows the female parent with the power of secreting a specially prepared food.

"The chief use of the carbohydrates to the animal seems to be to serve as fuel. By their oxidation in the body of the animal heat and energy are maintained. The proteids are not well adapted to this latter purpose, partly, no doubt, because of the difficulty of eliminating the products of their oxidation. In the early life of the mammal the chief use of food is for tissue formation. At a later period the principal demand for food is for fuel purposes. The necessity for tissue formation still exists, but to a more limited extent. For this reason, and also because of the only partially developed digestive powers a difference necessarily exists in the character of the food.

"Without going into details, I may say that experience has shown that the above list of alimentary principles should exist in our foods in certain definite proportions. A man engaged in moderate labor should have per day: Carbohydrates, 15 ounces; hydrocarbons, 4.5; proteids, 4.5; mineral matters, 0.75, giving, water free, total solids, 24.75 ounces.

"Since our solid foods are about 50 per cent. water, we must double these figures in order to obtain the actual amount taken daily, thus obtaining about 48 ounces actual food consumed per day.

"The composition of cow's milk is about as follows: Mineral matter, 0.72 per cent.; proteids, 3.6; carbohydrates, 4.4; hydrocarbons, 3.9; total solids, 12.62 per cent.

"In spite of all that has been said against it by members of the Philadelphia Board of Health and others, the fact still remains that separator skim milk is a wholesome and valuable article of food. In a letter from Prof. Woll he speaks very decidedly in favor of the use of separator milk. In my opinion, the only excuse that the Philadelphia Board of Health can offer for the position they have taken in reference to separator milk is that they feel obliged to adopt extreme measures in order to prevent fraud in the sale of skim milk for full milk. Separator milk and cream have far better keeping qualities than the milk from which they were obtained. Practically every trace of dirt and the greater part of the micro-organisms contained in the milk are removed by the centrifugal process and retained in the slime collected in the separator. Separator skim milk possesses every advantage over the old-fashioned hand-skimmed milk, and its use should be encouraged. Outside of the large cities separator skim milk is not easily obtained. In many towns little or no effort is made to sell it. The result is that people do not learn to use it, and hence cannot become acquainted with its food value.

"Skim milk contains about 9 per cent. of solids. When the water is evaporated from these solids a valuable food material remains, which consists of all the proteids, carbohydrates and mineral matter of the milk. The attempts thus far made to bring this material into use either as a food for man or the lower animals have met with very little success. Yet, when ground into a meal it can be mixed with boiled potatoes and made into potato cakes. I have several times experimented in this way with the dried solids of separator skim milk, and I find that it can be mixed with vegetable food materials and thus be made to supply a rational diet at small expense. Three years ago I exhibited potato cakes thus made at a Farmers' Institute. As one of the substances used in the dietary of armies and government expeditions, and for the inmates of charitable and penal institutions, the dry residue of skim milk is worthy of a place, or at least a trial. I see no reason why they cannot be combined with any farinaceous food, such as rice, corn meal, rye or wheat flour, in the preparation of a compact, nutritious food.

"When skim milk is used in fattening pigs the animals should also receive a fair allowance of carbohydrate food. To obtain the best results for the food fed the proteid material in the food of pigs should form about one-seventh of the digestible organic solids, but in the solids of skim milk the proteid material forms about one-half of the organic matter.

"The day will soon have passed when the people of this country can afford to waste their food supply. The value of the proteids or tissue-forming foods, especially those obtained from the animal kingdom, will increase as our population increases. Fifty years has seen a phenomenally rapid growth in all of the country west of the Mississippi River. If this growth continues at anything like the same rate, the vast areas now devoted to cattle grazing will be greatly lessened. As our country increases in population it is almost certain that our production of meat will not only fail to increase correspondingly, but will actually decrease. Meats will therefore form a smaller part of our diet. Even now, men who have families and are working on low wages cannot afford to buy meats for daily use. Extravagance in foods is one of the causes of poverty in every city and town. The cost of a food bears no relation whatever to its value as a nourishment to the healthy human body. Skim milk contains animal proteids in a form easily digested and assimilated. It is undoubtedly one of the cheapest, if not the

very cheapest, wholesome food of animal origin which can be supplied in immense quantities to all the markets of our country, and to learn to utilize this product of the dairy I regard as a problem of national importance."

Dr. Louis Waldstein, of New York, now of Berlin, Germany, will present for consideration at the coming Medical Congress of Munich, a suggested plan of treatment for tuberculosis and cancer. Specially is it directed toward the cure of lupus. Dr. Waldstein for many years has carried on experimentally the action of pilocarpine on the salivary and sweat glands, carrying out the actions noted on the various glands of the lymphatic system, and reasoning from their eliminatory power that they were stimulated powerfully by pilocarpine.

The key of his discovery is this: "By successive injections of minute doses of pilocarpine in the veins he arrives at a gradual stimulation of the lymphatic system. That system increases the white corpuscles in the blood, which corpuscles—as is well established through Metchnikoff, of the Pasteur Institute, of Paris; Hankin, of Cambridge, and Buchner, of Munich—in some way not generally agreed upon, do certainly overcome and cause to be harmless those poisonous particles in the blood which produce disease. Metchnikoff thinks that the microbes which destroy the red corpuscles of the blood are swallowed and englobed alive by the white corpuscles. Hankin and Buchner think that the white corpuscles merely absorb the dead microbes, and therefore call the white corpuscles alexine or protective particles. Dr. Waldstein goes to the fountain whence these white corpuscles spring, and tries to enliven its action and productiveness, when, through disease, these health-giving particles have become too few to keep the blood in proper order.

"Dr. Waldstein has not had time to watch the effect of his discovery in relation to tuberculosis of the lungs, but the reasoning that led him to what he has already achieved seems equally good for the cure of this terrible scourge of mankind. He strongly advises physicians to try pilocarpine in the early stages of consumption, and, indeed, in all diseases where the lymphatic system is involved, because of its stimulating action upon the organs in that system and the consequent production of white corpuscles. He has satisfied himself that pilocarpine, when injected in the veins, forms a trustworthy test for the presence of tubercular disease in man and animals, giving the phy-

sician the strongest possible certainty in the diagnosis of obscure cases.

"A striking instance of the truth of his reasoning is the case of a man, twenty-four years old, a Berliner, who has had a lupus on the back of his right hand for twenty-two years and was thought incurable. Relief was immediate after the first injection, and the hand is almost healed. This cure has created a sensation among medical men, and some hope that the road to the cure of cancer has been entered."

Dr. Louis Waldstein is a well-known physician of New York, born in that city some forty-two years ago. His father was for many years a leading optician, and his younger brother is Dr. Charles Waldstein, the archæologist, recently appointed Slade Professor at the University of Cambridge, England.

NOT PLEURO-PNEUMONIA.—The unconfirmed report that several herds of cattle located in eastern Morris County, Kansas, were affected with contagious pleuro-pneumonia was thoroughly investigated yesterday by experts belonging to the United States Bureau of Animal Industry and the Kansas State Live Stock Sanitary Commission. Dr. W. S. Devoe, travelling inspector of the United States Bureau; Albert Dean, the superintendent of the Texas quarantine department of the Bureau west of the Mississippi; Dr. N. S. Mayo, Kansas acting State veterinarian; J. W. Johnson, J. W. Moore, and John T. Brown, who compose the Kansas State Live Stock Sanitary Commission, were among the number.

Daniel Lemay, D.V.S., senior surgeon of the 7th United States cavalry, now stationed at Ft. Riley, for four years beginning with 1880 was State veternarian of Maryland, during which time, with the co-operation of the United States Government, the State was engaged in stamping out contagious pleuro-pneumonia within its confines, and during that time Dr. Lemay had slaughtered hundreds of animals, and, therefore, is thoroughly competent to pass judgment on suspected cases.

The first herd investigated was that of John Furney, four miles southeast of Alta Vista, who had in the feed lots on his farm originally sixty-three head of coming three-year-old stockers that he was roughing through the winter on corn fodder that was made by the hot winds before it had reached maturity, with here and there an abortive nubbin. The herd had no shelter other than the canopy of heaven and an open

irregular Osage orange hedge, a kind of substitute for a wind break. The fodder was almost devoid of any nutritive properties, and no grain had been given the cattle. They could not be expected to appear in the best of condition.

About three weeks ago one of the more timid succumbed to the inevitable. The fodder was thoroughly covered with dust, and for sometime an occasional cough was heard in the herd. Others in the surrounding section of country that were roughing through bunches on the same kind of rations reported some cough, and, like unto old witchcraft times, a sentiment grew, and one individual, more nervous than others, got shaky and asked advice of the State Board. Dr. Mayo appeared on the farm of Mr. Furney and suggested that one of the thinnest be slaughtered and a post-mortem be held, which was accordingly done. None of those present at this autopsy had had any personal experience with the supposed disease, and it was thought advisable to report to the State authorities and suggested that the United States Government Bureau be advised in the matter, which was accordingly done.

In the meantime between the zeal of the ever over-zealous newspaper man and the unintentional indiscretion of State-house officials, it was flashed by wire all over the United States and cabled to Europe, that Kansas herds were affected with contagious pleuro-pneumonia. Secretary Morton, of Washington, and Dr. Salmon, chief of the United States Bureau at once ordered Dr. Devoe to proceed and make a thorough examination. An animal, a long two year old, the thinnest and most woebegone member of the herd, was killed, and the autopsy showed, as was pronounced by Dr. Devoe, that there were no indications of the dreaded disease. Mr. Furney was much relieved, in common with his neighbors, whose herds had been—like his own—quarantined by the State Board until the question was definitely settled.

Several stockmen extended invitations to members of the investigating body to visit their herds with a view of holding post-mortems. After consulting about the supposed source of the trouble they went to J. W. Bond's farm, which lay about one mile southwest. He had forty-five head of coming three-year-olds that he had been in possession of for eighteen months. that run in feed lots sheltered by a grove of second growth size timber, and had been fed the same ration of hot-wind-cured corn fodder. There was some little in the favor of Mr. Bond's

fodder, as a major portion of his corn grew on the creek bottom and first bench land, and was when the hot winds struck it a little more near maturity. The herd was in better condition generally than was that of Mr. Furney, save that one unfortunate coming three-year-old had run down and about four weeks ago one of his hock-joints enlarged so that he could not well get around in the rustle for forage. Of course he was the most symptomatic individual, hence was selected as the victim for the post-mortem. Dr. Lemay having done the operating on the former animal was again selected to "carve dat 'possum." After a thorough examination of the internal organs it was decided, as was the other case, that there were no indications of the supposed disease, and further that it was useless to proceed with the examination, as Dr. Devoe decided that there were no indications, either external or internal of contagious pleuro-pneumonia. Dr. Lemay stated to the writer that the autopsies showed that the trouble was not contagious pleuro-pneumonia, but from all the symptomatic developments it was the result of anæmia or an impoverished condition due to the lack of a proper ration. Dr. Devoe said: "You may state for the benefit of the general public that after a thorough investigation there is no evidence, either historical or symptomatic, that the trouble is contagious pleuro-pneumonia." And thus ended the investigation.—*Kansas City Telegram.*

SOCIETY PROCEEDINGS.

SIXTH INTERNATIONAL CONGRESS OF VETERINARY MEDICINE AT BERNE, SWITZERLAND, 16TH TO 21ST SEPTEMBER, 1895.

THE JOURNAL is in receipt of an invitation addressed to the veterinary profession in America calling their attention to the Sixth International Congress of Veterinary Medicine, to be held at Berne, Switzerland, September 16th to 21st, 1895. They recall the circular issued on January 5, 1894, in which they announced:

1. That according to the decision of the Fifth International Congress, held at Paris in 1889, it was determined to hold the Sixth Congress at Berne.

2. The Committee of Organization has fixed the programme as given below. This is of the greatest interest in International Veterinary Sanitary Police, Public Hygeine, and Veterinary Medicine. Each of the subjects

will be printed in French and German, and will be sent to the members of the Congress before the opening.

The members of the Congress will be all those veterinarians and persons interested who subscribe before the 15th of August next.

The subscription is fixed at ten francs ($2), which entitles the subscriber to all the publications of the Congress. Subscriptions should be addressed with postal order to the Treasurer, M. le Dr. Rabeli, Professor at the Veterinary School, Berne, Switzerland.

Programme of the Sixth International Congress of Veterinary Medicine:

First Subject: International veterinary sanitary police; proposition for an international convention to regulate the commerce of cattle; publication of an international bulletin concerning the contagious diseases of domestic animals.

Reporters: Berdez, of Berne; Degive, of Brussels; Hutzra, of Pesth, and Perroncito, of Turin.

Second Subject: Injections for diagnosis and immunity from the standpoint of veterinary sanitary police; the results now obtained from them.

a. The value of mallein as a means of diagnosis of glanders.

Reporters: Beisswänger, of Stuttgart; Nocard, of Alfort; Preusse, of Danzig; Schindelka, of Vienna.

b. The value of tuberculin as a means of diagnosis in tuberculosis.

Reporters: Baug, of Copenhagen; Herr, of Berne; Semmer, of St. Petersburg.

c. The pneumo-bacilline and its use in the diagnosis of pleuro-pneumonia.

Reporter: Arloing, of Lyons.

d. Preventive inoculation in symptomatic anthrax.

Reporters: Cornevin, of Lyons; Herr, of Berne; Strebel, of Fribourg; Szpilmann, of Sembourg.

e. Inoculations for immunity and curative in tetanus in hog cholera and in pneumo-enteritis of the hog, etc.

Reporter: Schütz, of Berlin.

Third Subject: Tuberculous meat and public hygeine.

Reporters: Butel, of Meause; Fleming, of England; Guillebeau, of Bern, and Ostertag, of Berlin.

Fourth Subject: The influence of veterinary science on social development and on the augmentation of public health.

Reporter: Sydtin, of Karlsruhe.

Fifth Subject: Contagious pleuro-pneumonia; exposé of the results in each country of the means employed to combat this epizootic disease.

Reporters: Ekkert, of St. Petersburg, for Russia; Generali, of Modena, for Italy; Hirzel, of Zurich, for Switzerland; Leblanc, of Paris, for France and England and their colonies; Liautard, of New York, for America; Lindquist, of Stockholm, for Sweden-Norway; Persu, of Bucharest, for Roumania, Turkey, and the Balkan States; Rœcke, of Berlin, for Germany; Thomassen, of Utrecht, for Holland, Belgium, Luxembourg, and Denmark; Antero Viurrun, of Madrid, for Spain and Portugal.

General Reporter: M. Hirzel.

Sixth Subject: In accordance with a general expressed desire there will be a special section on anatomy—especially on a unification of anatomical nomenclature.

Reporters: Martin, of Zurick, and Rabeli, of Berne.

The reports of this Congress offer such an extended literature upon the most important subjects of veterinary medicine that it will be an opportunity for everyone to subscribe.

The manager of the JOURNAL OF COMPARATIVE MEDICINE will be glad to receive the subscriptions of American veterinarians and forward them. A list of American subscribers will be published in the Journals of June, July, August, and September. Address, inclosing $2,

DR. W. H. HOSKINS,
3452 Ludlow Street, Philadelphia, Pa.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

THE last regular meeting of the Veterinary Medical Association was held on Tuesday, April 2, 1895, at the New York College of Veterinary Surgeons, at 8 o'clock, with the President, Dr. Huidekoper, in the chair.

On roll-call the following members were present, viz.: Drs. Amling, Burns, C. C. Cattanach, J. J. Cattanach, J. S. Cattanach, Dickson, Delaney, Doyle, Ellis, Ferster, Field, Giffen, Gill, Glover, Huidekoper, Hanson, Loomes, Leighton, Lamkin, O'Shea, Ryder, Swan, Sherwood, Sherk, and Turner. Over fifty prominent horsemen and horseshoers were present as guests.

The minutes of the last meeting were read and approved.

The Board of Censors reported favorably the names of Drs. H. S. Field, C. E. Caulfield, H. Wellner, J. J. Foy.

It was moved and seconded that the report be accepted. Carried.

The Board of Censors also reported that they had laid the resignation of Dr. Liautard over until the next regular meeting.

A letter was read from Robert Bonner, Esq., expressing his regret that he could not attend.

The next order of business was the reading of papers:

Mr. David Roberge read a very interesting paper upon "Horseshoeing." (This paper will appear in the June number of the JOURNAL.)

Dr. Huidekoper followed with a paper upon the same subject, after which a general discussion took place, in which the majority of the members took part.

The next order of business was the election of new members.

It was moved and seconded that the by-laws be suspended and that the Secretary cast the ballot for all the applicants. Carried.

The Secretary cast a ballot declaring Drs. Foy, Field, C. Caulfield, and Wellner elected members of the Association.

On account of the lateness of the hour it was moved and seconded that all business be laid over until the next regular meeting. Carried.

The subject of horseshoeing will be continued at the April meeting.

Moved and seconded that the meeting adjourn. Carried.

J. ELMER RYDER,
Secretary.

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

The regular monthly meeting of the Keystone Veterinary Medical Association was held at the office of Dr. W. S. Kooker, 662 N. Eleventh St., Phila., on Tuesday evening, April 9th. The meeting was called to order

by the election of Dr. H. P. Eves President *pro tem*, after which the Secretary called the roll.

The report of the Legislative Committee conveyed to the members the standing of the present proposed legislation at Harrisburg, and urged the members to use their influence with the Senators to forward the Live Stock Sanitary Board Bill, and also the bill establishing a State Board of Veterinary Medical Examiners which had that day passed the House on third reading by a vote of 147 to 11.

The resignations of Dr. A. T. Sellers and W. L. Nunan were on recommendation of the Board of Trustees accepted by the Association.

A number of interesting cases were reported and discussed.

It was decided to hold the June meeting, which would be the last of the year, at Lansdowne, on invitation of Secretary Rhoads.

W. L. RHOADS,
Secretary.

DISTRICT OF COLUMBIA VETERINARY MEDICAL ASSOCIATION.

A special meeting of the District of Columbia Veterinary Medical Association was held on April 18th, at the College Building of the U. S. College of Veterinary Surgeons, directly after the commencement exercises. Drs. Jacob K. Shaub and Mortimer R. Weiner were elected to membership. No other business was transacted. H. W. ACHESON,
Secretary.

ILLINOIS STATE VETERINARY MEDICAL ASSOCIATION.

The meeting of the Illinois State Veterinary Medical Association was held at Peoria, Ill., February 28th, 1895. The meeting was called to order at 11 A.M. by the President, Dr. M. Wilson, of Mendota, Ill.

On roll-call by the Secretary the following members responded: Drs. A. G. Alverson, G. Z. Barnes, A. Babb, Geo. Ditewig, C. D. Hartman, R. W. Story, N. I. Stringer, A. M. Story, and M. Wilson.

On motion, Dr. W. C. Hanawalt, a graduate of the Chicago Veterinary College, class of 1892, who was vouched for by Dr. A. M. Story, was elected to membership by acclamation. The Society then adjourned for dinner. On convening at 2 P.M., the Society listened to a paper by Dr. Ditewig entitled "The Strongyli Tetracanthus and Armatus as a Cause of Death." A lengthy discussion then took place in which most of the members present related their experience with these helminths. On call of the President Dr. Barnes next read his essay "What of the Future of the Veterinary Profession?"

This article called for a general discussion, after which Dr. Babb gave a paper on "The Etiology of Tuberculosis."

At the close of the discussion that followed, Dr. Stringer made a motion, which was seconded by Dr. Ditewig, that the President extend in our names the regrets of the Society to Dr. J. W. Parkinson in his present illness and express our hopes that he may recover. On motion the Society adjourned to meet in Chicago next November. ALBERT BABB, A.B., M.D.C.,
Secretary.

MASSACHUSETTS STATE VETERINARY MEDICAL ASSOCIATION.

The annual meeting of the Massachusetts State Veterinary Medical Association elected the following officers for the ensuing year: *President*, J. M. Parker, Haverhill, Mass.; *Vice-Presidents*, C. Winslow, Rockland, Mass., W. A. Sherman, Lowell, Mass.; *Secretary-Treasurer*, H. P. Rogers, Alston, Mass.; *Executive Committee*: Drs. Thos. Blackwood, Chairman, Boston; J. F. Winchester, Lawrence; L. H. Howard, Boston; F. H. Osgood, Boston; E. C. Beckett, Boston.

VETERINARY MEDICAL ASSOCIATION, STATE OF NEW JERSEY.

The annual meeting of the Veterinary Medical Association of New Jersey was held at the State Street House, Trenton, on Thursday, April 11th.

The reports of the Secretary and the Treasurer show the Association to be in a flourishing condition. The officers elected are: *President*, Dr. J. W. Hawk, Newark; *First Vice-President*, Dr. J. Gerth, Newark; *Second Vice-President*, Dr. R. D. Hasbrouck, Passaic; *Secretary*, Dr. S. Lockwood, Woodbridge; *Treasurer*, Dr. B. F. King, Little Silver; *Trustees*, Drs. W. B. E. Miller, L. P. Hurley, R. O. Hasbrouck, W. Runge, and J. C. Dustan.

The number of applications for membership received at this meeting should infuse new life in the older members.

The revision of the constitution and by-laws and other important business consumed so large a part of the day that but one paper was read, entitled "The Necessity of a Thorough Diagnosis for the Successful Treatment of Animals."

A larger number of cases were reported than usual.

The next meeting will be held in Newark in October.

S. LOCKWOOD,
Secretary.

PERSONAL.

Dr. M. W. Drake is an applicant for the position of City Veterinarian to the Department of Public Safety under the new administration. He is a graduate of the American Veterinary College, but is not actively identified with any of the leading veterinary associations, local or State.

Veterinarians Gadsden, of Philadelphia, Pa.; Parker, of Haverhill, Mass., and Wright, of Burlington, Vt., conducted the practical examination of the class of '95 at the Veterinary Department of McGill University, Montreal, Canada.

Dr. Richard Ebbitt, formerly of Omaha, Neb., has been transferred to Indianapolis by the Meat Inspection Department of the Bureau of Animal Industry.

Dr. W. S. Devoe was hastily dispatched by the Bureau of Animal Industry to investigate the suspected outbreak of contagious pleuro-pneumonia in Kansas. His long experience and acute perceptions, trained by many former years in this line of investigation, soon dissipated all question as to the existence of this disease, and once again made us all breathe easier.

Dr. John R. Hart, the present City Veterinarian of Philadelphia, has held the position for many years. Under his faithful services the position has grown in importance and worth, and the compensation increased from time to time, until the present salary has become an attractive one. We are quite sure that any consideration of his removal does not emanate from any lack of discharge of duty by the present incumbent, for a more conscientious, faithful and earnest worker fills no public position of this kind in this country. We sincerely trust that if a change is anticipated that this position will be placed absolutely under the civil service, and that its attainment will only be secured by a thorough examination, by a committee of experts, on a similar plan as pertained to the recent choice of a chief and assistant bacteriologist to our City Board of Health.

Dr. W. B. E. Miller, Meat Inspector for the city of Camden, N. J., has been succeeded by the appointment of Dr. E. H. Landes. Another move on the political checker board is again recorded. When will our professional friends learn the lesson that follows in the train of uncertainty of these positions when so made? When will the merit system prevail and end this disgraceful farce among an intelligent, thinking people?

Professor S. J. J. Harger has accepted the direction of the veterinary department of the new journal, *Coaching*, published at Philadelphia, a paper devoted to the interests of the rider, driver, and all adjunct interests of coaching.

Dr. E. Mayhew Michener, formerly of Colmar, Pa., has removed to North Wales, Pa.

Dr. James A. Waugh, Veterinarian to the Duquesne Kennel Club, acted in a similar capacity to the recent bench show, held at Pittsburg in April, under the direction and management of the above club.

U. S. V. M. A.

To the Members of the United States Veterinary Medical Association and the Profession throughout the United States.

The Comitia Minora of the above Association have decided to hold the annual meeting of 1895, in September next, at Des Moines, Iowa. It is earnestly requested that all those desiring a place upon the programme will early communicate with the Secretary. All State and local associations will at their coming meetings elect delegates without further notice. By order of the President.

W. Horace Hoskins,
President.

Leonard Pearson,
Secretary.

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Tuberculosis will again be a prominent topic at the coming meeting of the U. S. V. M. A. The position of the Western people on this subject will be considered by Western veterinarians.

Eleven votes were cast for Des Moines, 1 vote for Columbus, Ohio, and 2 for Buffalo, if the meeting was to be held that far east, and for Des Moines if Buffalo was out of the race. The plea for Des Moines was the strongest ever put forth to secure the meeting, and bodes well for the success of the decision.

How many Eastern associations will send Delegates to Des Moines?

How many Eastern veterinarians will plan to attend?

The success of this meeting will largely determine how far west future meetings may well be taken and whether we will go to California in 1897.

Treasurer Robertson sounded the keynote for California two years ago for 1897. How many will follow in the movement?

The past year's experience in dealing with the many important aspects of the tuberculosis question from a practical standpoint should bear rich fruits at the coming meeting of the U. S. V. M. A.

Every State that has taken up the subject of bovine tuberculosis should send her strongest representation to Des Moines,

where every phase of the question might be thoroughly considered and thus bring forth some uniform plan toward which all future legislation might tend.

Should the one-and-one-third fare be granted by the railroads to Des Moines the fare from Philadelphia quoted by the Baltimore and Ohio will be $36.20

We are promised at Des Moines the attendance of several army veterinarians. Also a delegate from the California State Veterinary Medical Association.

Buffalo will be an easy winner for the meeting in 1896. She deserves it. She has some of the most progressive and earnest association workers in the country.

Iowa has long had one of the most earnest and successful State Associations in our country. They did yeoman service in using their influence to secure the '95 meeting for their State.

Every adjoining State Association, the Missouri Valley organization, and even California fell into line in the enthusiastic desire that the U. S. V. M. A. should this year go as far west at least as Des Moines, Iowa.

Pennsylvania will be represented at Des Moines by delegates from her State and local Associations.

Vice-President Turner believes that it will be the strongest move yet to complete the thorough amalgamation of the profession East and West.

The new date in September will bring representation from almost every experimental station.

CORRESPONDENCE.

A CATTLE DISEASE.

At the request of the editor I gladly furnish a concise statement of the reported contagious pleuro-pneumonia in Kansas.

At the request of Governor Morrill and with Dr. Pritchard, State Veterinarian, we investigated a disease of cattle in Morris, Geary, and Wabaunsee counties, and found them affected with a chronic pleuro-pneumonia, apparently infectious, being scattered through a number of herds. A number of cattle had died, and many more were sick. As lung diseases of cattle are

extremely rare in this climate and altitude, and no similar disease ever having been known here, the general symptoms and cause of the disease (running from two to three months and more) resembling contagious pleuro-pneumonia, it was decided to be sufficiently serious to warrant a thorough investigation by an expert familiar with contagious pleuro-pneumonia. Dr. Pritchard advised the Live Stock Sanitary Commission to quarantine the affected herds, which was done. I reported the condition of the cattle to Governor Morrill, and it was decided to call on the Bureau of Animal Industry for an expert to investigate. At the Governor's request I dictated a letter to Dr. Salmon, stating the condition of the cattle, and that the disease resembled contagious pleuro-pneumonia. It was decided to keep the matter quiet until it could be thoroughly investigated; hence a letter was sent in place of a telegram for fear the press might get hold of it. In the course of an hour or so telegrams inquiring about the disease came to the Governor from Chicago and Kansas City, and the press got hold of the news through some source unknown to me.

Neither Dr. Pritchard nor myself stated that the disease was contagious pleuro-pneumonia, and the reports that I said that the disease was contagions pleuro-pneumonia, and that the State was flooded with it, are false.

Dr. Devoe, of the Bureau of Animal Industry, decided positively that the disease is not contagious pleuro-pneumonia. Dr. Devoe thinks the disease is caused by dirty corn-fodder; but I am of the opinion that a lack of water and a very poor quality is a more satisfactory explanation, as cases of the disease occurred while the animals were on green oats the last of August and early September.

The disease affects cows more seriously than younger cattle.

Experiments are being made to determine whether the disease is infectious or not, and later I shall make a more detailed report.

N. S. MAYO, M.S., D.V.S.

An Australian sheepbreeder is endeavoring, through breeding, to establish a family of black sheep, using only black ewes with a black ram, rejecting all that are not true to color. Since black absorbs more heat, such sheep it is thought would be better adapted to the colder climates.

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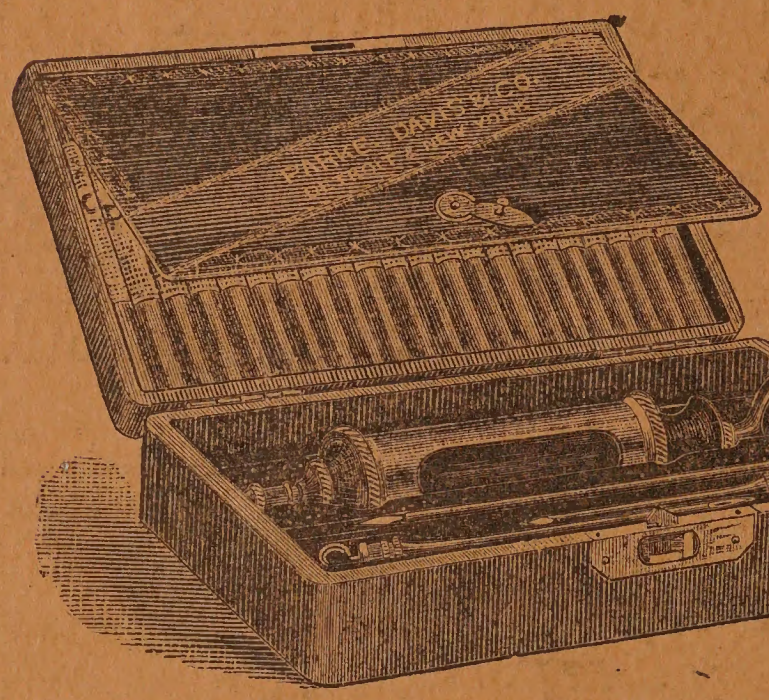

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